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Title: Construction-phase extended commuting and uneven regional development: Gender, households and work in Newfoundland and Labrador's new extractive economy

Dr. Lachlan Barber, Assistant Professor
Department of Geography, Hong Kong Baptist University, Kowloon Tong, Hong Kong
lbarber@hkbu.edu.hk

Abstract
Construction activity is intrinsic to the development of extractive industries infrastructure, requiring significant capital investment and large and varied workforces. The transience and temporary nature of this work, and the fact that local labour supplies do not meet demands in many resource-rich regions, have necessitated the development of a range of mobile labour practices. The specificity of such arrangements for construction phases remains underexplored. In particular, given that jobs requiring long commutes are framed as regional "industrial benefits" in resource development policy, the question of who can access these jobs is important. Focusing on Newfoundland and Labrador's construction workforce, this paper seeks to answer this question by reporting findings from qualitative research on the social and economic impacts of construction industry worker engagements with long-distance commuting in relation to industrial benefits objectives. Situating construction labour as a key upstream element in the Global Production Network (GPN) of the volatile Canadian resource sector, the article considers the logics that underpin participation in this type of employment. Building on recent work that develops a connection between long-distance commuting, global production and regional development, the article goes on reveal the gendered household-level dynamics of these arrangements.

Keywords
Construction; Global Production Networks; Gender; Extractive industries; Long-distance commuting; Canada

Highlights

- The construction phases of extractive industries projects in Newfoundland and Labrador rely on extended commuting.
- Extractive industries are central to the regional economy, but development is uneven and may not be sustainable.
- A Global Production Network approach attentive to labour and the transformation of places allows an understanding of the implications of the commute model for communities and households.

- In spite of efforts to include more women in the workforce, the commute model and other factors contribute to the persistence of the gendered dimensions of extractive industries construction employment.

1. Introduction

Construction activity is an important but underexplored part of the extractive industries. All extraction requires infrastructure that must be designed and built, assembled or fabricated. Resource economies have expanded rapidly over the last decade in a fashion typical of boom and bust cycles, employing many people in construction-phase work. As research in Australia, Canada and elsewhere has shown, new forms of labour organization and management have developed and evolved in mining and oil and gas operations in peripheral locations to complement economic imperatives. A central feature of labour arrangements in the extractive industries is long-distance commuting. Storey (this issue) describes a "commute model", involving sourcing workers from a distance, long working days and rotations, paid travel, and on- or near-site accommodations. The most conspicuous form of this model is "Fly-In, Fly-Out" (FIFO), but similar principles apply with the use of ground transport, including buses (BIBO) and driving in personal or company-owned vehicles (DIDO). These arrangements have replaced the "company town" model of an employer-developed settlement. The reasons for this shift are economic and managerial; supporting long distance commutes is cheaper, offers greater flexibility and carries less financial risk than creating towns for workers (Peck, 2013, p. 249). There may be costs, however; a growing body of research investigates the impacts of commute arrangements in source and host communities (Storey, 2001; Haslam McKenzie & Hoath, 2014; Markey, Ryser, & Halseth, 2015). One aspect of this phenomenon that has of yet received little attention is how different phases of extractive projects may involve different types of mobility and variations of this model, with different implications for employers, workers and

communities. This article investigates particular form of the commute model that exists in construction phases of large extractive projects. As a case study it considers Newfoundland and Labrador, a Canadian province that is the location of several current and recent extractive industries construction mega-projects for off-shore oil and gas, energy and mining. One of the most tangible and immediate effects of these large-scale extractive projects is construction-phase employment involving long distance commuting.

The principal concern of this article is to highlight the implications of the construction-phase commute model for regional development by investigating how it impacts on households and families. Opportunities and fortunes at this micro-scale foreground processes at the provincial scale in the context of ongoing efforts to develop a regional economy that, until recently, lagged well behind other parts of Canada. Newfoundland and Labrador, like other semi-peripheral resource regions, has been subject to various interventions on the part of state actors to establish broad-based, sustainable wealth creation. These efforts have focused on a number of areas including enticing firms to invest in the development of resource industries in ways that create revenue for the government, but also jobs. Indeed, construction-phase employment and, by extension, accompanying commute arrangements, are the result of a process of negotiation between a number of actors, including firms, labour, and state agencies. Jobs for residents of the province, and related skill and capacity development, are an "industrial benefit" representing a concession granted by capital in exchange for the right to extract and sell a resource under the territorial jurisdiction of the state. In part due to intense national competition for labour in the industrial construction sector, collective agreements for work on major projects offer comparatively high wages and travel-related compensation. However, given the cyclical nature of the resource economy, and construction work in particular, the sustainability of construction-

phase employment generated by resource-led development and equity of access to this employment in this case may be called into question. The “resource curse”, a thesis describing failure of abundant resources to translate into long-term and equitably-distributed wealth (Sachs & Warner, 1999), risks repeating itself. Of more specific concern here are the challenges posed by jobs that require high levels of mobility. In fact, the article argues, access to jobs is shaped by gender and household composition. Furthermore, the short-term nature of the jobs and economic volatility contribute to a further reliance on mobility.

Theoretically the article puts an analysis of employment-related geographical mobilities (Haan, Walsh, & Neis, 2014; Roseman, Barber, & Neis, 2015) in conversation with critical interventions into the literature on economic globalization which seek to assert the importance of an attentiveness to the transformation of places and regions in which different functions of production are embedded. Recognizing that regional change is foregrounded by household and community-level processes, it investigates these processes by examining the place-based dynamics of labour and commuting. The article builds upon recent research that uses the concept of “Global Production Networks” (Henderson, Dicken, Hess, Coe, & Yeung, 2002) to study extractive industries (Bridge, 2008; Santos & Milanez, n.d.) and long-distance commuting in resource-based economies (Rainnie, Fitzgerald, Ellem, & Goods, 2014). It addresses the fact that “the developmental effects of Global Production Networks in terms of livelihoods, gender relations, labour market participation decisions, class mobility and the cultural context of social reproduction are not well understood” (Kelly, 2013, p. 83). Unlike the extensive and transnational commodity chains or networks of the manufacturing industry, which has been the focus of most GPN studies, extractive industries have several features appropriate for a regional or place-based study. As Bridge (2008) points out, their development often involves strong state-

firm dynamics due to the territoriality of mineral resources; they also involve a high network density at the point of extraction because this is a capital intensive process that may involve TNCs, large and small firms. The article applies this perspective on the regional dimensions of upstream extractive production, with an interest in the fortunes of labour in the GPN (Rainnie, Herod, & McGrath-Champ, 2011) and, following Kelly, (2013) in broadening the scope of the GPN analysis. Thinking about the mobilities and immobilities of workers on the ground as part of a much larger network involved in developing, extracting, processing and selling resources, under conditions in which the state plays a key role as broker, renders visible the uneven regional production of value, the key feature of the embeddedness of global production in particular places.

The article draws on findings research on commuting related to “Special Projects” in Newfoundland and Labrador, a resource semi-periphery with similarities to parts of the U.K., Norway, and Western Australia. Special Projects are the construction phases of industrial mega-projects that make a substantial contribution to the provincial economy (Newfoundland and Labrador, 1990). As such, they are subject to the Special Project Order (SPO) provisions under the Labour Relations Act intended to isolate the projects from labour strife and ensure the timely completion of deliverables. Special Projects since the introduction of the SPO policy in the 1970s have included off-shore oil platforms, a nickel mine, a nickel processing facility, and hydro energy (see Table 1). Extraction generally, and extractive construction projects specifically, are often situated in locations where it is more cost-effective to bring in workers on a rotational basis than to create housing and a community for them. Newfoundland’s projects follow this trend, employing large numbers of people in rural and remote locations where labour force needs cannot be met locally. Many of those employed in jobs ranging from trades, to

housekeeping and catering, to engineering, design and management, are working away – often quite far – from their permanent homes. Construction work more generally is transient and requires movement from one project to the next, but this reality is quite different outside of the highly visible urban contexts that most social science research on construction focus upon (Buckley, 2012; Pink, Tutt, & Dainty, 2012).

The remainder of the article proceeds in four parts. An overview of the research methodology and context explains how the research was conceived and carried out, including the particularity of the construction phases of extractive industries projects. Second, a review of the Global Production Networks literature, including recent work that applies GPN insights to extractive industries, situates the contribution of the article in relation to calls to pay more attention to labour and the transformation of places in which functions of production are embedded. Issues related to the gendered dimensions of extractive industries work are also treated briefly. Next, the historical trajectory of Newfoundland from an economy dominated by seasonal employment in the fisheries and forestry industries to a booming extractive economy is introduced, with the relations between the oil industry, the state, and labour emphasized as a transformative force. The last part of the article discusses empirical findings of issues arising from extended daily commutes and the uneven opportunities for and consequences of participation in this form of employment.

2. Methods

This article is based on qualitative research conducted in Newfoundland and Labrador from December, 2014 to August, 2015. Semi-structured interviews were conducted with 25 key informants (17 men and 8 women) involved in the resource-based construction sector, including public officials, employers, representatives of industry associations, a women's organization,

trade unions, and labour groups. A further total of 14 interviews were conducted with 18 construction workers (15 men and 3 women) who are current or past employees on industrial construction projects in the province, including pipefitters, ironworkers, electricians and labourers[1]. Three of these were small group interviews (2-3 people) designed to elicit interaction between the interviewees. It was challenging to recruit workers, in part due to their demanding rotational work schedules and commutes, and the understandable need to rest, attend to household duties and spend time with family and friends while not at work. The interviews took place in St. John's, at a major industrial construction site within commuting distance of St. John's, and in the Burin-Marystown area, a source community for both construction in the province and in Alberta. The interviews were semi-structured, following a guide, but veering off-script to allow unanticipated questions and themes to be developed. Those with workers were designed as work histories in which work and employment-related mobility intersect with home life. Those with other construction industry actors focused on gathering information on each project and the broader policy, labour and industrial context with a view to developing a history of extractive industry construction in the province with a focus on labour mobility and commuting. Where direct quotes from interviews are provided in the article, pseudonyms are used to protect the anonymity of the participants.

The author also met with project representatives at industrial construction worksites in order to gain insights into the scale and scope of the projects, and the atmosphere and work environment. A review and analysis of a variety of documents, including government policies, benefits plans, corporate reports, legal proceedings, and news reporting helped deepen an understanding of political and institutional contexts of mobile work. Reports and grey literature

[1] In this article the key informant interviews are cited as KI Interview 1, 2, etc. The interviews with workers refer to pseudonyms.

published by think tanks and government agencies were also reviewed. A comparison of labour agreements for special projects over time revealed developments in compensation and the commute model. The suggestion that hourly wage increases create greater income stability, however, was problematized by informants.

Defining the scope of the construction industry is an important methodological question for the research. Although the industrial, commercial and residential construction sectors exhibit clear divisions and characteristics, there is a significant amount of exchange and movement between them. In particular, the movement of workers from residential to commercial and industrial work may be understood as a form of occupational upgrading. Many people who begin working in construction locally in the residential sector move to more mobile work in the industrial sector (KI Interview 14). This was positioned by some of the trades people we interviewed as more challenging due to the long hours and travel requirements, and related strains on health, family and relationships that it entails. The pay is higher, in part because the overtime hours are longer. Residential work, in contrast, offers lower pay, shorter hours, and, importantly, no compensation for travel. Firms may also move, expand and contract in an effort to develop. The point here is that the construction industry is complex, and the interviews were designed to capture this complexity, while also emphasizing the construction phases of extractive industries projects as regionally specific iterations of the global resource industry.

3. Global production and labour in construction phase extractive industries

The Global Production Network (GPN) framework is a theory, a heuristic, or approach advanced by scholars of economic globalization to explain new and deepening complexities in the spatial organization of production. No longer is globalization characterized only by increases in trade, mobility and communication, but by the integration of production activities across

borders (Dicken, 2003). The central focus of the GPN approach is to use new tools, principally a focus on spatiality, to understand how value is produced unevenly across dispersed production networks (Henderson et al., 2002). Firms play a key role, but the GPN also encompasses other actors, including the state, civil society organizations, and labour. Because production is spread across territories, so is the production of value, with firms that play more important functions earning more, benefiting the places where these functions are located (Coe, Dicken, & Hess, 2008). This is especially obvious for manufactured goods that may have multiple components or inputs in different places, allowing different value capture by different actors. By thinking about how production relationships are configured through networked, non-linear relations, GPN builds upon earlier theories including the broadly conceived conceptualization of commodity chains as a feature of world-systems theory (Hopkins & Wallerstein, 1977) and later Global Commodity Chains (GCC) (Gereffi & Korzeniewicz, 1994) and Global Value Chains (GVC) (Gereffi, Humphrey, & Sturgeon, 2005).

Beyond manufacturing, the GPN approach has been used to study a range of commodities and services, including extractive industries such as oil (Bridge, 2008) and iron ore (Santos & Milanez, 2015). The approach has not yet been applied specifically to construction phases of extractive industries, or construction more generally. The construction industry, as previously noted, is large and complex; there is a tendency among scholars to focus on its more visible urban parts. Here we draw attention to industrial construction for extraction, while recognizing, as previously explained, that there is labour and firm interaction between other sectors. In Newfoundland and Labrador, as elsewhere, the most significant features of the construction phases of extractive projects are the involvement both local and extra-local actors, and the assemblage of a large workforce, involving various forms of mobility. Projects involve a large

engineering, procurement, contracting and management (EPCM) firm that acts as a lead contractor, with large contractors managing particular components, and unions supplying labour. Here, construction a key upstream element in the extractive process. As Bridge (2008) points out, extractive industries have an unusually strong territoriality leading to high levels of state involvement. Mineral resources are generally owned by the state and developed by corporations through lease and licensing arrangements and other territorial policies. In Newfoundland, for example, the development of off-shore oil reserves has proceeded under the terms of the Atlantic Accord, a royalty-sharing agreement between the Canadian government and Newfoundland and Labrador. The Accord was the outcome of jurisdictional conflict and negotiation in the late 1970s and early 80s. It grants the province some of the powers that the Federal government had earlier claimed for itself in the New Energy Program (NEP), which foresaw the generation of government revenues from offshore oil production. It requires a Development Plan, covering financial arrangements, timing, and scope of work, and a Benefits Plan, discussed below. These plans, along with the SPO designation governing the construction phase are products of what has been called “strategic coupling”, the interface of the corporation with the state (Yang, 2009).

The purpose here is not to give a complete overview of the contributions, developments and debates in the GPN literature. It is instead to build upon a rather specific but important critical intervention. Scholars have begun to problematize the absence of labour from the GPN framework (Coe & Hess, 2013). To ask what role labour plays and how it fares in the GPN is a not a new question (Smith et al., 2002), but has at times been sidelined in the firm-centred analysis that characterizes much of the literature. Recent work has attempted to correct this exclusion by recognizing the constitutive role that labour plays as an agent of production (Cumbers, Nativel, & Routledge, 2008; Selwyn, 2013). Following Kelly (2013) and Rainnie et al

(2014), this article proposes that labour plays an important function within the network, and that place-based dynamics of labour are an important feature of the production of value which, in turn, has implications regional development and change. The role of labour in GPN has begun to be conceptualized and debated through the concept of "social upgrading"(Selwyn, 2013). Social upgrading builds upon one of the central ideas in the GPN configuration, which is that that firms shift or "upgrade" their position in a network (Coe, Hess, Yeung, Dicken, & Henderson, 2004). For instance, a firm involved in a low-value activity such as fabricating a simple component of an electronic device may develop into a more profitable realm, such as research and design. Critics have pointed out that this insight neglects the role of labour in the process and have introduced the idea of "social upgrading", to ask whether what is good for the firm is good for its workers and the broader social context (Barrientos, Gereffi, & Rossi, 2011). This question is integral to the role of global production in regional development in Newfoundland. Local construction firms have developed to participate in the resource economy, but the majority of workers on construction projects are employed on a temporary basis by large firms. Moreover, the work hours and mobility requirements make the jobs difficult for many to access, regardless of skill and qualification levels. Strategic coupling has indeed been strategic form some actors, but benefits are unevenly distributed. Following Kelly (2013), this article makes visible the dynamics of the household in the GPN, and the mobility between home and work that both production and reproduction depend upon (Hanson & Pratt, 1988).

Work in the extractive industries is gendered, but not always in ways we may expect. Jobs, including in mining, that are constructed as masculine have been shown to have a long history of women's, often overlooked, participation (Eveline & Booth, 2002; Lahiri-Dutt, 2012). In Australia, the emergence of highly paid mining jobs perpetuated traditional gender roles of

male breadwinners and home-making women, dependent on their working spouse's incomes. Unlike "mining wives" living in company towns, FIFO and commute arrangements encourage distance between home and work, which often has a significant effect on the one left at home (Mayes & Pini, 2010). Like in mining, the meanings and spaces of construction work have grown to reflect masculinities that have a tendency to perpetuate traditional gender roles reflected in divisions of labour and in workplace cultures (Iacuone, 2005; Ness, 2012; Pink et al., 2012). The Australian mining industry, like extractive industres in Canada, has attempted to make traditionally male-dominated careers more attractive and accessible to women. In part, efforts to incorporate women are a strategy to address real or projected labour shortages. Moreover, while some claim that mining has undergone a "feminine revolution," Mayes and Pini's (2010) research reveals that this discourse obscures other gendered processes at play that amount to masculinity presented as gender neutrality.

Why does it matter that women are underrepresented in extractive industries work generally, and in construction-phase extractive industries work that involves long distance commutes? In Australia, like in Canada, this under-representation is in a highly paid workforce. Special projects in Newfoundland and Labrador have been celebrated for bringing jobs to a province where employment, particularly outside of the St. John's area, was scarce. But if most of those hired are men, questions arise. Beyond the workplace itself, how does the reliance on mobility at major project sites shape opportunities for women and for families? Given the very active role of the government in the exercise of strategic coupling, and in the very real consequences of access to steady income in a context of global economic volatility related to commodity prices, this is a very urgent question not only for the region under examination in this article, but in most sparsely populated resource-rich areas.

4. Newfoundland and Labrador: The Making of a Resource Periphery

Newfoundland and Labrador is Canada's eastern-most and newest province[2], having joined confederation in 1949 after existing under various governance regimes as a colony of the United Kingdom for over 200 years. The homeland of a number of Indigenous groups, Newfoundland is recognized in Canada for its distinct cultures, dialects, and rugged landscapes. Outside of the greater St. John's area, which is home to approximately 200,000 of the province's total population of 514,536 (Census of 2011), the population is dispersed, principally in coastal areas that were historically endowed with abundant fish stocks. As an island in a remote, northern location, Newfoundland's historical development was shaped by its relative proximity to markets for fish, including Ireland, where many settlers originated, Portugal and other places on both sides of the Atlantic connected to the cod fish trade (Kurlansky, 2011). For most of its history, travel to the rest of Canada, and even within the province, was challenging as a result of limited, seasonal and weather-sensitive transport infrastructure.

According to populist political narratives, Newfoundland and Labrador has undergone a transformation from one of Canada's "have not" provinces to one of its "have" provinces (Marland, 2010). This accomplishment was proclaimed by premier Danny Williams in 2008 when the province lost its eligibility for "equalization payments" under a scheme the Canadian government uses to enable provinces to offer comparable levels of public services across widely varying regional economies (Government of Canada, 1982). The new economy – evident in falling unemployment and provincial debt, rising wages, and a more favourable credit rating – was largely attributable to a move from fishing to the extractive industries and energy as the economic pillar of the province. It is also marked by efforts on the part of the provincial

[2] Nunavut, created in 1999, is newer but is classified as a territory not a province. Provinces hold jurisdictional powers while the powers of territories are delegated to them by the Canadian government.

government, as evident in the 2007 Energy Plan (Government of Canada, 1987), to play a more active and assertive role in these industries for the benefit of the region. By the time the government introduced a moratorium on the Northern Cod fishery in 1992, the groundwork had already long been in place for the exploitation of offshore oil reserves, beginning with Hibernia in 1997, and continuing with a number of other projects. A longer historical view reveals a movement from sea and land-based resources, including small-scale mining, logging and associated processing, and the ubiquitous fishery, to more infrastructure intensive energy and extraction (Cadigan, 2009). Given the rural, seasonal and unskilled nature work in fishing and forestry (Wadel, 1973), developing employment opportunities in other sectors was an important political project. Mining began in the 1860s with copper discoveries and was encouraged through the mid-20th century by the provincial government as a way to generate jobs and settle the province's interior. Beginning in the 1970s, with the introduction of competitive claim-staking to replace the concessionary system, extraction became more about attracting investment, but also generating royalties, and capturing value in the form of "benefits". It is in this context that energy, oil and gas, and mining mega-projects have been developed.

Joey Smallwood, the premier who led the province into confederation in 1949, envisioned a transition to a modern society and economy. Long before Newfoundland and Labrador began to produce its own oil Smallwood's government speculatively courted global oil markets by supporting the development of the Come-by-Chance refinery, which processed oil from the Middle East for a few years until it went bankrupt as a result of the 1970s oil crisis (Higgins, 2008). Another early mega-project project championed by Smallwood, in a "high modernist" era of such projects as expressions of state power (Scott, 1998), was the Churchill Falls hydroelectric facility in Labrador. This project was intended to generate income for the

province through the sale of electricity to buyers in the south. The construction phase of the project led to the creation of the Special Project Order (SPO) legislation, which provides an exception to the normal terms of the Labour Relations Act for large, multi-year construction projects that develop a natural resource in the province.

The SPO legislation, part of the Labour Relations Act, allows a project-wide collective agreement to be negotiated by a council of trade unions and an association of employers. The agreement is in place for the duration of the project and applies only to the project in question. The goal of this arrangement is to create a climate favourable for investment by ensuring stable labour relations (no strikes or lockouts, clear wage increases, benefits, and a process for the resolution of jurisdictional disputes). For offshore oil and gas projects, the SPO process is complemented by clause 45 in the Canada-Newfoundland Atlantic Accord Implementation Act that requires the development of an Industrial Benefits Plan, which states that "individuals resident in the Province shall be given first consideration for training and employment in the work program for which the plan was submitted. (Government of Canada, 1987). It also specifies that projects may be required to "include provisions to ensure that disadvantaged individuals or groups have access to training and employment." Such groups may include women, Aboriginal peoples, "visible minorities" and people with disabilities. Benefits plans thus set out principles, policies, and procedures with respect to employment and other provincial benefits, and include provisions for diverse workplaces and equity of access to employment. They cover both construction and operations phases of off-shore oil developments. Benefits plans are different from "impact benefits agreements" (IBAs), a process or mechanism common in the mining industry which, owing to its territoriality, has a history associated with the dispossession of Indigenous peoples. IBAs are increasingly used to include locally impacted peoples in planning

and governance processes for mining projects on traditional lands, such as was the case at Voisey's Bay (Mills & Sweeney, 2013). IBAs for mining fall under the environmental assessment process under the Department of Environment whereas Benefits Plans are overseen by the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB).

The SPO legislation exists in part to aid in assembling mobile workforces composed of residents the province, as per Benefits Plan stipulations, for projects in remote locations. It has only been used a handful of times since it was introduced, including at projects in progress during the period the research was carried out: Exxonmobil's Hebron project at Bull Arm, Vale's nickel processing plant at Long Harbour, and the Lower Churchill Project-Muskrat Falls project in Labrador. The collective agreements for these projects include an array of clauses relating to travel and commuting. Due to significant differences between the island and Labrador, this article considers only the Hebron and Long Harbour projects[3].

The relationship between the policy framework for major projects and worker mobility is important because it shows how the movements of workers are part of the political economy of resource extraction. Construction workers are not merely traveling to and from work; they are traveling to and from jobs that are paid for by some of the world's largest, wealthiest and most profitable transnational corporations. Following Rainnie et al (2011, p. 98), Fly-In Fly-Out (FIFO) and various other commute forms (long drives, bussing, etc.), are a "spatial fix" through which extractive industry firms seek to "manage relationships between themselves, their workforces, and the communities where their workers live." These companies, such as

[3] The mainland and island spheres of the province have quite different realities. For one, Labrador is home to a significant northern Aboriginal population that does not have a statistically significant parallel on the island, in part due to the more intensive colonization and settlement of Newfoundland. The emergence of IBAs has increased the participation of Indigenous Labradorians (Inuit) in the extractive labour force and labour governance in the context of an overall retrenchment of the resource development from the forms community linkages and benefits that characterized "mature staples" economy (Mills & Sweeney, 2013). Benefits plans, in contrast, refer to benefits at the regional or provincial scale rather than at the community level.

Exxonmobil and Vale, are headquartered in Texas and Brazil respectively. Their presence in Newfoundland is a reflection of the global scope of the extractive industries, and the territorial embeddedness of upstream activities, a key node in the extractive production network.

Measures of the recent shift in Newfoundland's economy are remarkable. The unemployment rate peaked at just over 20% in the early 1990s. By 2013 it had dropped to 11.6% (seasonally adjusted) and was lower in the St. John's area (Statistics Canada Labour Force Survey). Special Projects contributed to this trend with the creation of thousands of jobs. Income generated through employment in the broader resource economy has had significant indirect economic impacts, including on retail and real estate. House prices in St. John's experienced a growth rate similar to that of Vancouver, peaking in 2012 (KI Interview 14).

It would be wrong to attribute Newfoundland's new wealth, especially its falling unemployment and rising wages, solely to endogenous growth related to resource development. The province has been an important source of labour for Alberta's oil industry since the 1980s (Hiller, 2009) and, to a lesser extent, industries in other Canadian provinces and other countries (Nolan, 2007). In the early 2000s it became a standard practice for companies in Alberta to pay for workers to travel inter-provincially on a rotational work schedule. Rather than migrate, workers were able to maintain a home in Newfoundland, supporting their families but spending time with them only intermittently. During the peak years of Alberta's boom there was a steady supply of skilled and entry level jobs, some long-term, others short-term, for people willing to commute across the country by plane. Alberta oil production involves less capital and labour input in the construction phase, but continued inputs during production. Interview respondents suggest that recent Special Projects have allowed many people who traveled to Alberta for work to shift to a shorter commute within the province. This is especially attractive for those within

daily driving distance of major project sites. Given the finite duration of construction phase employment, however, it is almost certain that they will have to travel again in the future.

5. Labour and Mobility at Special Projects on the Isthmus

Two of Newfoundland's current Special Projects[4] are located on the Isthmus that connects the Avalon Peninsula to the rest of the island: Vale's nickel processing facility at Long Harbour[5] and Exxon's Hebron project, a gravity-based structure for offshore oil production. These projects, in addition to being geographically proximate, have overlapped temporally, occasionally competing for labour. The construction of Hebron began in 2012 with first oil expected in 2017. The cost is roughly 14 billion Canadian dollars. The project site is located at Bull Arm, the location where Hibernia, Newfoundland's first offshore oil platform, was developed in the 1990s, roughly 150km west of St. John's. An hour's drive from St. John's is the turn off to Long Harbour, where Vale has developed a plant to transform ore mined in Labrador into nickel for export. Construction of this 4.25 billion dollar facility began in 2009 and it was partially operational in 2014. In the construction phases of these projects employment of Newfoundland and Labrador residents is a key benefit. There are differences in the details of employment at these two sites. For instance, Hebron offered camp accommodations for the duration of construction while Long Harbour initially provided camp rooms but phased out this facility due to a lack of demand. The scope of work on the Hebron project has involved elements that require continuous work, requiring around the clock operations. There are many similarities as well, foremost the fact that both have relied heavily on rotational work, employing workers

[4] Two others, the Maritime Link and Muskrat Falls, were not included in this study because they have several differences: they are hydro energy rather than extractive projects, they do not have a substantial population within daily commuting distance and hence rely primarily on FIFO workers, and because they are not owned by TNCs but rather by the province.

[5] See Hall's (2014) study on labour mobility in Long Harbour and Sudbury, Ontario, with a focus on comparing the nature and extent of extended commuting, community impacts and responses in two nickel processing communities.

who reside in the province. The details of the collective agreements, including wages and travel compensation, elucidate the attraction of these jobs.

Hebron and Long Harbour are subject to respective site-wide collective agreements, as per the terms of the Special Project Order legislation. There are a number of components to the project, each involving a different firm and contractors, but most workers are supplied by trade unions. Work schedules and rotations vary according to trade and task but there are several commonalities across both projects that are features "the commute model" more generally. There are a range of shift rotations, usually involving a period of work, exceeding a normal five-day work-week, followed by a period of rest. A common rotation on both sites is 14 days of work followed by 7 days off. A typical work day is 10 hours with an unpaid half hour lunch and two paid breaks. The work day starts at 7am and ends at 5:30pm. Over the 14 days worked, the first four would be paid at a standard hourly wage; the fifth at 1.5 times the hourly rate and the sixth and seventh at double overtime. The cycle repeats during the second week of work. In addition to wages, additional remuneration is provided for travel to and from work. This comes in a variety of forms depending on whether or not the worker lives at the camp (if one is offered) or off site, and the distance of their principal residence from the work site. Collective agreements specify travel zones for determining whether workers are entitle to a living out allowance (LOA), mileage, or no travel support. For the Hebron project (2011), for example, Zone 1 (up to 50 km) is the "free zone" in which no support is provided. Workers in zone 2 (50 to 100km) receive mileage. Workers who live from Zone 3 to Zone 8 may choose between living in the camp (if there is space) or receiving an LOA of over 120 dollars per day worked. This allowance is intended to provide workers with the opportunity to avail of accommodations close to the site, although it is common for people to continue to commute daily and use the allowance as regular

income. As such, the LOA may have the unintended consequence of encouraging workers to commute longer distances.

The combination of long hours, long commutes and extended work rotations has become standard at these and other projects, achieving several industrial objectives. Competitive wages attract workers who are residents of the province, some returning from jobs in western Canada to work closer to home. The schedules are designed to meet technical requirements and to ensure the timely completion of project deliverables. Extended commuting, in this case long drives of over an hour each way from the St. John's area, facilitates production. Here, as elsewhere, it is a solution to a mismatch between labour market and work location. It is also a way that benefits are conveyed to the region, that wealth is generated in households and communities. But which households and which communities are able to participate in the GPN? Which are able to exchange their labour (hours worked) and mobility (the commute, which is paid for) for wages? Moreover, how do households who participate in this arrangement fare?

6. Gender, home and mobility in the construction-phase GPN

The number of women working in the trades has increased steadily over the past decade. Government and industry supported training programmes and policies have broken down some of the barriers that have traditionally prevented women from entering the construction industry. These include sexist workplace cultures perpetuated by a minority of men which are made more challenging by the bystander effect. Efforts to overcome these problems, including women's equity and diversity employment provisions for major projects, build upon discussions initiated at the Hibernia construction project in the 1990s, where, according to an informant with a history of involvement in construction labour market issues, women with the appropriate skills and training were not being hired for construction jobs (KI Interview 8). Nation-wide approximately

5% of skilled trades workers are women, and women make up roughly 12% of the construction industry labour force as a whole (Status of Women Canada, 2015). Aside from challenges in the workplace, to what extent does the requirement to be mobile affect womens' participation in the extractive construction labour force?

Informants suggested that for younger women who don't have children, the demands of the major project work are possible. However, once they begin a family it becomes much more difficult. These are obviously challenges that fathers may experience as well but the traditional household division of labour makes them doubly so for women. A representative of an organization related to the construction industry highlighted the need for support networks (grandparents or other family members) to allow mothers of small children the opportunity to work on big sites because, "there aren't external options that provide the care needed for unconventional work schedules and extended days due to travel or commuting." (KI Interview 5) The external options might be daycares that open very early in the morning or provide overnight care.

Interviews revealed the challenges that parents of young children face when negotiating the long hours and long drives required to work on major projects. These challenges are amplified some mothers and single parents like Michelle, a female pipefitter in her late 30s. She completed in training but didn't work at her trade for several years because there were no local jobs available. In order to work she would have had to travel, likely out of province. This was not possible because she was a single mother of a young child. Instead she worked at a car dealership a 10 minute drive from her home. In 2013 a contractor hired a large number of pipefitters for work at a major project. She was only able to take the work because she had family support nearby.

> "My mom lives next door there… she'd either stay over with her… [without her] I'd probably have to get a babysitter or something. It would be harder because you have to get up early. Well, I was on night shift and that was not so bad because I'd be there in the morning when she'd go to school, then when she'd get home I'd be there for a couple of hours but I had to leave at 5 o'clock to go to work." (Trades Interview 4)

When asked what she will do once this job close to home ends, Michelle was resigned to the need to travel further afield for work. This is a possibility, again, because of the family supports that exist nearby, and because her daughter is getting older: "She's 12 now, so she understands it more… I'll go for turnarounds [in Alberta] and then come home. It will still be hard." This contrasted with the experience of Marie, a pipefitter in her mid-40s. She entered her trade when her children were grown and works on a major site with her husband, who is also a pipefitter. John, a carpenter, highlighted that such a scenario is rare:

> I have seen "couples that travel the site back and forth and done their 14 and 7 as husband and wife. But I can tell you, them people they got no kids now. Their kids are grown up and moved on. So they took the opportunity to travel the two of them and go out there. You didn't see many young people with kids do that, because there was too much involved."

Much more common are cases like Dave's, a journeyed pipefitter who has been commuting long distance for 13 years. When he and his wife had children, she left her career for five years to be a full-time mother, "I wanted her to stay home and she wanted to stay home." This was possible because he had received numerous promotions and had a good income. Dave pointed out that his solid and mutually supportive relationship was something that he and his wife had to work hard to maintain in the context of his challenging work schedule.

The long hours and schedules make it difficult for anyone with young children and family responsibilities to succeed in this work. Mike, a male electrician in his late 20s suggested that some men do not pursue work on large projects because "they can't hack doing this." *Doing this* may not only refer to the work, but also everything that comes along with it – the long hours and

long drives, the potential strain on relationships and family life. The alternative is work in the city where one works "their 40 hour week and they're used to that kind of stuff." But work on big projects is something that some men become quite used to as well, especially the substantial pay check:

> "Some guys are okay with the 30,000 dollar truck, right? Some guys want something a little bit nicer, you know what I mean? I mean, you could pay your house off doing what we do, pretty quickly – if you didn't spend it on trucks and cars and quads and skidoos."

There is a hegemonic masculinity (Connell & Messerschmidt, 2005) in operation here. Not only is it difficult for women to participate in this work, it is challenging for many men not to. When they begin to earn money, it is common to spend it on "toys" – light-duty trucks seasonal recreational vehicles. A vehicle purchased on credit, requiring monthly payments for 5 or 6 years, locks the owner into a debt arrangement, requiring a continued high level of income. Though it may be possible to earn such income for work at Special Projects, job security is minimal. There are no contracts and there is little certainty about when a job on a site will begin and end. There are generational differences in responses to and perspectives on this reality. Older workers who have experienced booms and busts tend take a more conservative approach to debt and job uncertainty, while some younger workers, especially those who came of working age during the past decade, are less cautious. It is thus difficult for men (and women) to leave this work, even the demands are not compatible with their home life.

Conclusion

This article has discussed dynamics labour and mobility related to construction-phase extractive industries construction projects in Newfoundland and Labrador. These projects are the result of state, industry and labour agreements oriented to the timely project delivery, while also providing benefits for the region, including employment. Embedded within the framework for

these projects is a reliance on mobile work and an assumption that construction-phase jobs are available to any qualified resident on the province. The article has shown that this may not be the case. Although efforts are made to extend employment benefits to women, among other traditionally under-represented groups, long-distance commuting remains a potential barrier. The commute model may also contribute to the operation of hegemonic forms of masculinity that both rely on and reproduce the distance between home and work. Employees of construction-phase Special Projects will be forced to reckon with the end of their project- and site-based work at a time when global economic conditions have rendered the viability of future projects uncertain. Skills are transferable to work in residential and commercial construction, to jobs with fewer hours, shorter durations, and less pay, or to similar jobs further afield.

The Global Production Network approach draws attention to the uneven production of value in the places and regions in which the functions of production are embedded. Following scholars who have emphasized the constitutive role of labour, and new forms of labour mobility in extractive industry GPNs, this article hones in on the ways capital-intensive, upstream oil production activities, and the mobilities they depend upon, are transforming places, communities and households in the region of Newfoundland and Labrador. This is a distinctive Canadian resource periphery that has, in the recent past, been shaped by the positioning of extractive projects at the centre of economic development efforts. Although the region has unique attributes, it shares much in common with other resource-rich regions, particularly in the more developed world, that rely heavily on mining and oil and gas production for wealth generation; Western Australia, Norway, Scotland and elsewhere in Canada share much in common with Newfoundland. Perhaps what is distinctive in Newfoundland is the extent to which mega-projects were embraced as a salve for the damage wrought by the fisheries collapse, both for the

government, but also in communities, and in households. The findings of this research show that not only are the employment opportunities created in the construction phases of projects are highly gendered in spite of efforts to include women, but they also risk leading families into a reliance on mobile work in the context of an industry subject to periodic contraction.

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Project	**Type**	**Date**	**Location**
Churchill Falls	Hydro Energy	1967-1975	Labrador
Hibernia	Offshore Oil (GBS)	1990-1997	Newfoundland
Terra Nova	Offshore Oil (FPSO)	1997-2002	Newfoundland
Voisey's Bay	Mining	2002-2005	Labrador
Long Harbour	**Nickel Processing**	**2009-present**	**Newfoundland**
Hebron	**Offshore Oil (GBS)**	**2011-present**	**Newfoundland**

Muskrat Falls (Lower Churchill)**	Hydro Energy	2013-present	Labrador
Maritime Link	Hydro Energy	2014-present	Newfoundland