Craft and the Contemporary Geographies of Manufacturing: Local Embeddedness, New Workspaces, and the Glamourization of Work in the Craft Brewing Sector

by

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Abstract

Craft forms of production have enjoyed a notable revival in recent decades and have been argued to provide a source of competitive advantage in a post-Fordist economic landscape. Craft combines physical manufacturing with creative production to produce objects imbued with notions of quality, authenticity, skill, and bespoke production. Craft elevates particular practices and processes, which has allowed it to become viewed as a more environmentally responsible and socially just way of organizing production. This dissertation explores the normative landscape of craft, emphasizing the implications it has for contemporary geographies of manufacturing. Drawing on a mixed methods approach, and an in-depth case study of the craft brewing sector in Portland, Oregon, the dissertation highlights three unique geographies associated with contemporary craft manufacturing. First, the dissertation highlights a tendency towards spatial agglomeration and a (re)localization of small-scale production in advanced economies. It traces the development of Portland's craft brewing cluster, highlighting the significant role that place-specific institutional and material factors have played in the emergence and growth of the cluster. Second, the dissertation highlights a heightened perception and

desirability of manufacturing work associated with the contemporary resurgence of craft, despite the presence of precarious working conditions in craft sectors. A key finding of the dissertation is that precarious working conditions are actually being exacerbated by the heightened status of craft brewing work. Finally, the dissertation highlights a fusion of industrial and cultural production associated with the recent craft revival and documents the ways this has transformed industrial workspaces. In particular, the dissertation emphasizes the unique spatial and locational requirements of craft breweries as well as the ways that their workspaces are enlisted to serve both production and consumption functions. It also places the material landscape of craft beer production in conversation with urban planning, revealing the ways in which craft breweries are used by policy-makers to promote gentrification, tourism and neighbourhood branding and the ways in which these policies are simultaneously benefitting and threatening the continued existence of Portland's significant craft brewing cluster.

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Chapter 1
Introduction: The Contemporary Geographies of Craft Manufacturing[1]

Over the past few decades, there has been a resurgence of craft-based modes of manufacturing across a wide variety of industrial sectors (Leslie and Reimer 2006; Donald 2009; Heying 2010; Warren and Gibson 2014; Jakob 2013; Ocejo 2014). Craft refers to "a form of skilled labour that is quality-driven, materially specific and motivated by internal, as well as external rewards" (Banks 2010, p. 307). Craft production involves physical manufacturing based on traditional knowledge and haptic skill[2]. Yet, craft encompasses not only a mode of production, but also a normative stance that views particular practices and processes as superior to others (Banks 2010; Ocejo 2010; Sennett 2008; Jakob 2013). Craft producers are dedicated to doing "good work," and hold materially specific definitions of what that entails (Sennett 2008, p. 20). In this way, craft labour is a form of 'immaterial' labour, producing ideas, images, affects, and relationships alongside material products (Bratich 2010; see also Lazzarato 1996; Hardt and Negri 2000).

Thus, while craft modes of production have been argued to provide firms and regions a competitive advantage in a contemporary, post-Fordist economic landscape, the growth of craft also reflects the prioritization of an alternative politics (Piore and Sabel 1984; Best 1990; Jakob 2013). Craft production has been linked to critiques of contemporary capitalism, where craft is viewed as a less environmentally damaging and more socially just way of organizing production (Jakob 2013). Whereas globalized economic production results in the de-skilling of labour and the standardization of goods, localized craft production is argued to be a basis for community building, and for skilled, free and autonomous labour (Sennett 2008).

This dissertation explores the implications of the normative landscape of craft for contemporary geographies of manufacturing. Using the case of the craft brewing sector in Portland, Oregon as

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[1] A significant portion of this chapter has been published as a paper in *Geography Compass*:

Fox Miller, C. (2017). The contemporary geographies of craft-based manufacturing. *Geography Compass 11*(4), 1-13.

[2] Haptic skills are based on the senses of touch and proprioception and are developed through the manipulation of objects.

an entry point, I analyze the ascent of craft brewing within the context of the broader system of cultural, institutional, geographical, historical, and political relations that produce and sustain it. In doing so, I explore the role of urban-scale, place-specific factors in the development of the sector, as well as the effects that the rise of the craft brewing industry has had on urban areas and on the broader brewing industry. My analysis focuses on answering the following research questions:

1. How can we explain the emergence and growth of the craft brewing sector in Portland? What historical, geographical, and institutional factors have shaped the evolution of Portland's craft brewing sector?

2. What does the rise of craft brewing mean for the organization of work in the brewing industry?

3. What is the relationship between craft brewing and place? How is the rise of craft brewing connected to economic development narratives and to new landscapes of consumption?

The recent resurgence of craft manufacturing has been argued to be the 'third wave' of craft revival (Luckman 2015). As with previous waves, craft in the contemporary period carries with it a unique political imaginary that reflects the historical legacy of craft, as well as the context of its contemporary resurgence. I highlight three unique characteristics associated with the 'third wave' craft revival that are of interest to economic geographers, specifically: 1) a tendency towards spatial agglomeration and a (re)localization of small-scale industrial production in advanced economies, 2) an altered perception of manufacturing work, and 3) a fusion of industrial and cultural production that has changed the role of the workspace in industrial production. My argument fits into this three-part framework, drawing on the case of the craft brewing sector in Portland, Oregon in order to foreground the need to consider the industry- and place-specific nature of the rise of contemporary craft industries. First, I argue that institutional and material factors play a significant role in the emergence and development of craft manufacturing sectors by tracing their influence on the rise of the craft brewing sector in Portland. Second, I argue that, while the resurgence of craft manufacturing has enhanced the perception and desirability of manufacturing work, working conditions in the craft brewing sector reveal a landscape of both passion and precariousness. Moreover, I argue that the

heightened status of craft brewing work has contributed to precarious working conditions by increasing competition for positions in the sector and keeping wages low. Finally, I argue that individual craft manufacturing sectors have spatial and locational requirements particular to their production systems, and that the hybrid nature of their production systems, which encompass both cultural and industrial forms of production, place them in a uniquely complex relationship with urban land use policy.

In the following sections of the introduction, I first place the contemporary moment of craft revival in historical context by introducing the three waves of craft revival. I then delve further into the three unique characteristics of the contemporary 'third wave' craft revival, highlighting my contributions to the literature within each theme. The next section describes my research design and methodology, introducing the craft brewing sector and the emergence of Portland as a key hub of craft beer production and innovation. Finally, I provide an outline for the subsequent chapters of the dissertation.

1.1 Three Waves of Craft Revival

Craft has always existed as the counterweight to industrialized mass production. Although it was marginalized after the Industrial Revolution, it was never completely incorporated or eliminated by capitalism, which is why we see renewed interest in craft production at various points in history (Bratich 2010). The 'first wave' craft resurgence began in the late nineteenth century with the English Arts and Crafts movement, pioneered by John Ruskin and William Morris. Ruskin and Morris saw danger in the material abundance and standardization of goods that industrialization begot and warned specifically of the alienation that workers experienced as a result of the separation of head and hand under factory production systems (Buszek 2011; Greenhalgh 2002; Krugh 2014). They advanced the merits of craft production systems, arguing that the social relations of craft – learning by doing, learning from others, and producing objects in their entirety – provided a basis for enlightened, and unalienated, labour (Morris 1888; Ruskin 1849; Crook 2009; Luckman 2012; Krugh 2014).

The ‘second wave’ craft revival coincided with the ‘hippie’ counter-cultural movement of the 1960s and 1970s. During this period, craft was again understood as the basis for pleasurable and rewarding labour (Luckman 2012). In search of purpose in life, many young people left careers during this era, and opted for alternative lifestyles. Often this entailed a renewed emphasis on growing one’s own food or making products by hand (Luckman 2015). Craft formed a central part of this movement, offering a politicized way to rebel against the dominant current of capitalist culture, and to reconnect with the value of human labour (Halper and Douglas 2009; Krugh 2014).

The contemporary ‘third wave’ of craft has its origins in the crisis of Fordism in the 1970s, and the subsequent growth of alternative models of manufacturing, such as flexible specialization (Piore and Sabel 1984). This, along with the rise of fragmented consumer cultures, and the increasing importance of the symbolic and aesthetic qualities of products, has allowed room for small-scale craft-based production to occupy a position in the competitive landscape of advanced economies (Lash and Urry 1994; Scott 2000; Ross 2004; Featherstone 2007). New craft-based sectors – in industries ranging from food to furniture to fashion – are populated by small enterprises, producing a limited range and quantity of products characterized by high semiotic and aesthetic content (Scott 1996). In many of these industries, the growth of craft production is resulting in the diffusion of economic power, as craft producers increasingly compete with large-scale mass producers (Leslie and Reimer 2006; Donald and Blay-Palmer 2006; Donald 2009).

Technological advances have played a significant role in enabling the revival of craft manufacturing in the contemporary ‘third wave’. The Internet now acts as a ‘long tail’ distributor, allowing niche products at the ‘tail’ end of the demand curve to be as economically viable as mainstream items at the ‘head’ of the curve (Anderson 2007; Luckman 2015). The online craft marketplace Etsy.com has been particularly influential in this regard, encouraging the growth of craft entrepreneurialism by connecting small-scale producers to global audiences (Jakob 2013; Luckman 2013; 2015). More broadly, web-based technologies and social media have contributed to the ‘third wave’ craft revival by heightening the visibility of craft practices, and by fostering new spaces for craft-based community building (Luckman 2015; Minahan and Cox 2007; Bratich 2010; Bratich and Brush 2011). Other technological innovations, such as 3D printing and CAD (computer-aided-design), have been influential in niche manufacturing

movements, such as the Maker's Movement, by facilitating the union of design and manufacture in the creation of unique and customizable products (Clark 2014).

The 'third wave' revival of craft also reflects a growing awareness of the environmental and social costs of globalized industrial production (Luckman 2015). The 'third wave' of craft has been connected to the anti-sweatshop movements of the 1990s, and to a progressive politics of anti-globalization, environmentalism, and third-wave feminism more generally (Ross 2004; Bratich and Brush 2011; Dawkins 2011; Luckman 2013; 2015). As a result, craft products tend to emphasize quality, uniqueness, ethical consumption, and local production (Krugh 2014; Luckman 2015). Yet, as Williams (2011) argues, contemporary craft also reflects more conservative impulses, being, in many ways, a nostalgic valorization of historic practices of making (see also Minahan and Cox 2007; Turney 2009). Making in the contemporary era is also less about necessity and more about answering to a larger aesthetic and moral calling (Dawkins 2011). The ability to become a craft producer is associated with privilege and cultural capital; there is an implicit luxury in having the time, resources, and cultural capital needed to engage in craft and to successfully create the 'right' aesthetic for sale on the market. Moreover, the bespoke character of craft products allows them to embody uniqueness and authenticity, characteristics valued and used by the cultural elite as a way of performing status and distinction (Zukin 2008; Johnston and Baumann 2010; Ocejo 2010; Bourdieu 1984). As such, rather than revolutionizing capitalist social relations, contemporary craft may actually serve to reproduce social inequalities.

1.2 Geographies of Craft Manufacturing in the 'Third Wave'

The contemporary 'third wave' of craft revival carries with it several unique characteristics, including spatial agglomeration and local embeddedness within advanced urban economies, an altered perception of manufacturing work, and the emergence of new industrial/cultural workspaces.

1.2.1 Spatial Agglomeration and Local Embeddedness

Since the 1980s, the common narrative about manufacturing in advanced economies has been one of deindustrialization, and the transition to a post-industrial future. Yet, as Clark (2014) notes, while these arguments suggest that manufacturing does not, and cannot, exist in advanced economies, it is clear that it both does and can. Many manufacturers, both small and large, have weathered the storm of industrial change and globalization, while small-scale craft manufacturers have also emerged in advanced economies to meet growing markets for 'authentic', handmade products (Warren and Gibson 2014; Curran 2010; Donald and Blay-Palmer 2006; Zukin 2008).

The increasing presence of craft production systems in advanced economies challenges the presumed economic primacy of post-industrialism (Williams 2011). Craft production systems are locally embedded in ways that present a disincentive to offshoring. Craft skill is developed over time based on traditional production methods that cannot be reproduced through formal training alone. There are typically significant elements of learning-by-doing, trial and error, and the development of personal judgment based on the material in question (Sennett 2008). Thus, being largely tacit, rather than codified, craft knowledge is geographically 'sticky'; it is situated in particular locales, being largely developed and exchanged through localized production networks (Blundel and Smith 2013; Banks 2010; Gertler 2003).

In addition, like other cultural products industries, craft-based manufacturing sectors rely upon a production system that constantly consumes, creates, and reinforces place-specific imagery as a means of product differentiation (Scott 1996; 2000; Molotch 1996; Leslie and Reimer 2006). Place and provenance are central to definitions of quality and tradition in craft products (Donald 2009; Leslie and Reimer 2006). The normative threads of environmentalism, anti-globalization and social justice that run through the contemporary resurgence of craft lead craft producers to commit to place and community as a central aspect of their business philosophy. Craft producers eschew discourses of national competitiveness in favour of strengthening local productive capacities. They seek out partnerships with local suppliers and choose to retail either directly from their workshop or in locally-owned, independent shops, and markets. In this regard, individual producers are increasingly joined by guilds and other craft intermediaries who work to promote local capacities, and to create local production networks (Thomas et al. 2013; Clark

2014). In this way, craft production is often intimately entangled with regional identity formation (Warren and Gibson 2014; Thomas et al. 2013).

Moreover, despite the rise of online craft business, third-wave craft-based manufacturing sectors tend to have strong spatial agglomeration tendencies (Scott 1996). Clustering enables the transmission of tacit craft knowledge, as well as innovation based on interactions among producers within the cluster (see Gertler 2003; Buciuni and Finotto 2016). Competition may become rather intense in craft clusters, driving quality and innovation in the final product. Yet, as Scott (1996) notes, certain kinds of collaboration and cooperation also tend to be present within craft-based clusters, which allow producers to continue honing their skill.

Being reliant on the production and communication of 'sign-value' (Lash and Urry 1994), craft-based manufacturers often cluster in urban areas, as the density and diversity of urban cultural production offers greater opportunities for cross-fertilization within and between sectors (Leslie and Reimer 2006; Stolarick and Florida 2006; Storper and Venables 2004). A concentration of firms in the same sector facilitates the transmission of knowledge and skill between producers, which can drive creativity and innovation (see Marshall 1890; Arrow 1962; Romer 1986; Porter 1990). Yet, as Stolarick and Florida (2006) argue, the density of cultural production in urban areas also offers the possibility for knowledge transfer and creative inspiration to occur across sectoral boundaries. They follow Jacobs (1969) and Glaeser et al. (1992) in arguing that variety in the economic landscape is an important source of inspiration and innovation. However, Frenken et al. (2007) find that knowledge spillovers are more likely to occur where the technological and cognitive distance between sectors is not too great; as such, they argue that related variety, rather than variety or specialization, is the most fertile source of creativity and innovation. Indeed, craft producers in one sector make take ideas and inspiration from those in other craft sectors and may even collaborate on projects from time to time. Within the city, older urban industrial areas may be particularly appealing for small-scale craft manufacturers, due to favourable zoning, relatively inexpensive rents, and close proximity to consumers (Curran 2010). The density of producers within these districts can further enable collaboration and cross-fertilization by encouraging cultures of socialization and networking from around particular neighbourhood bars and cafes (see Rantisi and Leslie 2010; Lloyd 2010).

Chapter 2 engages with this theme by considering the emergence and development of a specific craft cluster, the craft brewing cluster in Portland. In doing so, the chapter responds to recent calls for research that places the emergence of contemporary craft sectors in historical context (Gibson 2016; Patchett 2017). The chapter highlights the significance of place-specific material and institutional inheritances in the emergence and early success of Portland's craft brewing sector, combining Gibson's (2016; Gibson and Warren 2018) focus on labour process and its attendant materialities with an emphasis on institutions from the broader evolutionary economic geography literature (see Martin and Sunley 2006; MacKinnon et al. 2009; Martin 2010; Leslie and Rantisi 2011; Hassink et al. 2014). The chapter also traces the reciprocal development of the region's historic hops[3] growing industry and the role of co-evolving institutional structures in supporting the continued development of the craft brewing sector and its entrenchment as a key part of Portland's image and economy.

1.2.2 Manufacturing Work

As during the Arts and Crafts movement, craft in the 'third wave' is viewed as offering rewarding, and authentic experiences. Craft production is about being engaged with materials, production processes, and communities (Gauntlett 2011; Price 2015). As a result, work in these new craft manufacturing sectors is increasingly seen as 'cool', desirable, and as a meaningful alternative to unsatisfying and uncreative work in other sectors (see Ocejo 2010; 2012; 2014; Neff et al. 2005). This represents a distinct shift from the common perception of manual labour as the domain of 'boring' and repetitive tasks undertaken by unskilled workers (Hall and Jayne 2016; Carr and Gibson 2016).

In fact, craft has long been emblematic of utopian labour. Since the Arts and Crafts movement, craft has been argued to offer an alternative to the alienation that stems from the speed, competition, and the division of labour inherent to factory production systems (Sennett 2008; Krugh 2014; Luckman 2012; Marx 1973). Rather than boredom, the repetition of craft signals

[3] Hops are the cone-shaped flower of the hop plant (*Humulus lupulus*), a climbing vine without tendrils, and are one of the four main ingredients in beer (the others being malted barley, yeast, and water). Hops are used to provide bitterness, flavour, and aroma to beer. They also act as a natural preservative (Blake 2012).

rhythm and enchantment. Craft work is iterative, existing between problem solving, based on haptic skill, and problem finding, animated by a continual drive to investigate, learn, and adapt (Carr and Gibson 2016; Ocejo 2010; Sennett 2008). Craft labour engages both head and hand in "productive flow states" that balance skill and challenge, routine and creativity (Luckman 2015, p. 82; see also Sennett 2008). This rhythm can lend workers a sense of control over their labour, and provide opportunities for the development of self-awareness, and self-esteem (Ocejo 2010; Sennett 2008; Thurnell-Read 2014). Indeed, craft producers are often described as deriving pleasure and purpose from their labour, as well as from the experience of seeing their work enjoyed by customers (Hackney 2013; Sennett 2008; Blundel and Smith 2013; Thurnell-Read 2014; Warren 2016).

While manufacturing work has been perceived as the domain of the uneducated lower classes, contemporary craft production increasingly attracts the educated (and white) middle and upper classes (Ocejo 2010; Luckman 2013; 2015; Dawkins 2011; Williams 2011). As craft is rarely a source of full-time income, Dawkins (2011) suggests that the ability to become a craft producer may rely on a certain level of privilege and cultural capital. For these workers, engaging in craft work is less about a pay cheque, and more about living a certain lifestyle and realizing a personalized vision of the 'good life' (Ocejo 2012; Dawkins 2011; Warren and Gibson 2014; Warren 2014; 2016). A consistent observation regarding craft producers is that they have a genuine passion for their work, and that being a craft producer forms a key part of their self-identification (Dawkins 2011; Warren 2016; Paxson 2012). Many craft workers start out as hobbyists, transitioning to paid work as a personalized solution to the desire for joy in labour (Thurnell-Read 2014). Because of its roots in hobby, paid labour is often interlaced with friendship (Warren 2016; Warren and Gibson 2014). Work spills into leisure and back again in a fluid manner that transcends the workshop. In this way, craft work calls into question the boundaries between professional and amateur in ways that have prompted Luckman (2013) to argue that it may be more fruitful to conceive of craft production as existing on a fluid spectrum of 'pro-am' activity (p. 260; see also Hackney 2013).

Yet, while the craft moniker may be elevating the perception of work in some sectors and for some workers, it is important to note that craft is not a universally appealing descriptor. In fact, it has a long history of demeaning the work of women. Craft knowledge in manufacturing sectors

is often coded as ‘masculine,’ emphasizing physicality and rationality, and is often grounded in, and guarded by, insular, exclusionary, and patriarchal guild associations (Rantisi 2014; Sayce et al. 2007). Female craft practice historically occurred in the home, as opposed to the workshop, and was driven by familial sacrifice rather than dedication to a higher moral or aesthetic calling. The traditionally feminized domestic arts and crafts, such as knitting, quilting, and sewing, have historically been regarded as “a distraction and leisure pursuit” rather than as a legitimate economic activity (Hackney 2013, p. 170). This gendered interpretation of craft casts female craft workers as amateurs working for supplemental income, and contrasts them with the (male) skilled, and educated artisan who pursues his craft as a career. Because of this historical baggage, some female craft producers see craft as a pejorative term that de-legitimizes their work by relegating it to the status of hobby (Hughes 2012).

Chapter 3 of this dissertation picks up this theme by responding to a need for research that questions the ideal of craft work in relation to the lived experiences of work in craft manufacturing sectors. While it is important to recognize the potential role of craft in the fight for ‘good’ work, we must also attend to the more negative affective dimensions of craft work, such as fear, anxiety, and exhaustion, as well as to the divisions between and among craft workers (Hughes 2012; Luckman 2012; 2015; Gill and Pratt, 2008). A key question in this regard involves asking what kind of employment craft producers are actually able to create for themselves, and under what circumstances the decision to pursue craft employment is made (Jakob 2013). There is a distinct difference between making out of necessity and making as part of a larger moral call-to-arms. While contemporary craft has been argued to be the domain of the (white) middle and upper classes, the surge of craft employment in the wake of the Great Recession of 2008-2009 suggests a potential counter-narrative (see Jakob 2013). Thus, as Ross (2004) cautions, while craft producers are not “factory wageworkers,” craft production is not necessarily immune to exploitative working conditions (p. 216). In exchange for greater creativity, pleasure, and autonomy, craft labour is often precarious, characterized by low pay, long hours, bulimic working patterns, and profound experiences of insecurity and anxiety (Jakob 2013; Dawkins 2011; Banks 2010; Warren 2016). Chapter 3 engages with these conversations by highlighting the glamourization of craft brewing work in Portland and considering the ways in which that image reflects and interacts with the daily duties of craft brewers. As a craft

manufacturing sector, these duties reflect a unique combination of creative expression alongside manual production tasks (see Carr and Gibson 2016). In doing so, the chapter argues that the glamourization of craft brewing work has actually exacerbated many of the precarious working conditions found in the sector. Thus, the chapter suggests that, while craft may offer pleasure at work for some, it may be more myth than reality for many.

1.2.3 New Workspaces

Craft is both an economic and a cultural process (Carr and Gibson 2016). Craft manufacturing challenges the idea that creativity and design are separate from the physical process of making, by interweaving design, production, and consumption in unique ways (Warren and Gibson 2014). Rather than prices, the value and competitiveness of craft products derive from the cultural aspects of production, and particularly, from symbolic associations with quality, tradition, and individuality (Scott 1996). As Luckman (2015) argues, by purchasing craft products, "consumers buy into a particular identity idealized for themselves and seen as enabled by the maker" (p. 128; see also Campbell 2005). Craft consumers generally have considerable cultural, social and economic capital (Campbell 2005; Ocejo 2010). They value the 'authenticity' of craft products, the ways in which they communicate the local, the traditional, and the handmade, and use the consumption of such authenticated products as a means of performing class distinction (Zukin 2008; see also Bourdieu 1984).

Because of this, craft producers must work to establish their credibility as 'authentic' craft manufacturers through substantial promotional and aesthetic labour. They do so by enlisting the normative values of craft, which emphasize the inherent morality of purchasing products made locally, and of using particular tools, processes, and materials to make those products (Ocejo 2010; Warren and Gibson 2014). To this end, the architecture and interior design of production facilities have become key components in the image construction and marketing of craft goods (Leslie and Reimer 2006; Ocejo 2014). Craft businesses often value the aura of making that historic industrial buildings exude. A gritty, industrial image lends 'authenticity' to craft-based manufacturers by recalling images of a time when production was a more central aspect of the urban landscape, and by offering hope for a productive, yet alternative, future (Curran 2010; Dawkins 2011; Mathews and Picton 2014).

Chapter 4 of this dissertation engages with this theme by exploring the ways in which craft producers validate the 'authenticity' of their products by inviting consumers to experience production. Craft producers often opt to do their own distribution and retail, and choose to locate retail spaces alongside production (Leslie and Reimer 2006; Mathews and Picton 2014). By making production spaces visible to consumers, craft producers explicitly showcase the process of quality workmanship, as well as the 'localness' of production (Mathews and Picton 2014; Ocejo 2014). In this way, craft production spaces not only provide space for consumers to buy directly from producers, but also for the cultivation of shared cultural values and understandings. Craft producers bridge the production-consumption divide by offering themselves as sources of cultural knowledge (Ocejo 2012). As such, spaces of craft production are frequently designed to facilitate and encourage face-to-face encounters between producers and consumers. Craft producers use these encounters as a means of communicating their philosophy of craft production, of uncovering the customer's tastes and values, and of gaining customer 'buy-in' based on shared passions and political convictions (Ocejo 2010; Warren and Gibson 2014; Warren 2016). In the process, craft workspaces are emerging as new spaces of elite consumption.

Chapter 4 also extends this theme in new directions by responding to calls for additional research concerned with the intersection of urban policy and craft manufacturing (see Grodach et al. 2017). In particular, the chapter considers the relationship between urban land use policy and the hybrid cultural / industrial production system of craft manufacturing and the new workspaces that are emerging as a result. In doing so, this chapter also responds to calls for additional research focused on understanding the 'micro-geographies' of craft brewing (McLaughlin et al. 2014).

1.3 Research Design

Craft manufacturing sectors have emerged in particular places as a result of historical legacies of craft skill, institutional and material factors (Gibson 2016; Chapter 2). As a result, in order to understand the implications of the 'third wave' craft resurgence for manufacturing sectors and regions, we need to study the emergence of particular sectors and their effects on particular locales. To this end, this research considers the case of the craft brewing sector in Portland,

Oregon, using it as a means of enhancing our understanding of the development and characteristics of the American craft brewing sector more broadly. Case studies provide the researcher with an opportunity to undertake in-depth investigations of certain problems and phenomena within their real-world context (Baxter 2010; Yin 2014). By focusing on real-life complexity, case studies allow for the development of a nuanced view of reality, acknowledging that context is often significant to an adequate understanding of the phenomenon in question (Flyvbjerg 2006). This is particularly the case for case studies that focus on a limited number of cases, as this practice facilitates in-depth qualitative research (Yin 2014).

1.3.1 The Rise of the American Craft Brewing Sector

The craft brewing sector is an increasingly prolific example of the contemporary rise of craft manufacturing. Having been all but erased from the industrial landscape of American brewing, craft breweries have made a phenomenal comeback, consistently growing in number and gaining market share since the 1980s. While there were eight craft breweries in operation in the U.S. in 1980, by 2000 there were 1,500 (Brewers Association 2018a; Tremblay et al. 2005). Sales of craft beer have also grown rapidly, now consistently outpacing sales of conventional products. Today, there are over 6,000 craft breweries operating in the U.S. and craft brewers continue to gain market share at the expense of both imports and large-scale domestic producers (Brewers Association 2018a; 2018b; Watson and Gatza 2015; 2016).

Craft breweries operate in fundamentally different ways than conventional breweries, taking pride in independent ownership, small-scale production, and traditional brewing knowledge. To be considered part of the craft segment, breweries must produce less than 6 million barrels per year, must be independently owned,4 and must have the majority of their total production in beers whose flavours derive from the fermentation of traditional or innovative brewing ingredients (Brewers Association 2018c). Craft breweries rely on these definitional principles to distance themselves from the conventional brewing economy. Rather than price, they compete on the assumption that independence, small-scale production, and traditional brewing methods

[4] Defined as having less than 25% of ownership or equivalent economic interest in the hands of an alcoholic beverage industry member that is not itself a craft brewer (Brewers Association 2018c).

result in beer that is superior in quality, that is 'authentic,' and that embodies a sense of rootedness and uniqueness of place.

While at one time all brewers in the U.S. could have been categorized as craft brewers, consolidation in the U.S. brewing industry throughout the 20th century created an industrial landscape dominated by large-scale mass production brewers. Prior to Prohibition (1920-1933), advances in brewing and bottling technology allowed larger brewers to improve efficiency, lower production costs, and, ultimately, undercut the prices of smaller, local breweries (Shears 2014; Flack 1997). Prohibition dealt small, local brewers an additional blow and throughout the post-war period brewers continued to exit the market at an astonishing rate (Elzinga 2011). By 1977, only 96 breweries remained in production, with the majority controlled by only a very few large brewing companies (Brewers Association 2018a). In fact, some observers have argued that the U.S. brewing industry was oligopolistic by the mid- to late-1960s (Tremblay et al. 2005; McGahan 1991). Thus, while the U.S. brewing industry is still dominated by two companies – Anheuser-Busch InBev and MillerCoors – the rise of the craft brewing sector represents a significant trend towards fragmentation in an industry long associated with consolidation and large-scale production.

Interestingly, most economic analyses did not anticipate the emergence and growth of the U.S. craft brewing sector. In fact, many actually predicted the opposite: rising levels of concentration in the hands of the few leading industrial players (e.g. Porter 1980). Yet, in spite of the unprecedented and unpredicted growth of craft brewing, there remains relatively little academic research on the craft brewing sector, and none that connects it to the rise of craft manufacturing more broadly. Of particular interest to geographers, there are lingering questions regarding how and why the craft brewing movement has flourished in particular places.

1.3.2 The Craft Brewing Sector in Portland, Oregon

I strategically selected Portland, Oregon as the case study for my research in order to enhance the generalizability of my findings. Although case study research is guided by the idea that an in-depth understanding of one manifestation of a phenomenon is valuable in its own right, case studies have been criticized for their lack of transferability (see Baxter 2010; Flyvbjerg 2006). To overcome this limitation, researchers can select extreme, critical or paradigmatic cases, which

reveal a greater amount of information or more strategic pieces of information due to their very unrepresentativeness (Flyvbjerg 2006; Yin 2014). These are cases that 'shine' and, as such, typically provide an opportunity to explore and clarify the deeper roots of a particular phenomenon, with the underlying assumption that, if a theory holds for these types of cases, it is likely that it will also hold for other cases (Flyvbjerg 2006).

Within the landscape of American craft brewing, Portland is certainly a case that 'shines.' Craft breweries first emerged in cities throughout Northern California and the Pacific Northwest and these areas continue to be significant craft brewing hubs (Brewers Association 2018d). Since its beginnings in the 1980s, Portland has been at the forefront of the growth and development of the American craft brewing sector. Widmer Brothers Brewing, BridgePort Brewing Company and Portland Brewing Company were all established in the mid-1980s, for example, while McMenamins, now a chain of 65 brewpubs and breweries across Oregon and Washington, opened its first brewpub in 1985. Dubbed 'Beervana,' in 1993, Portland housed more breweries than any other city in the U.S. (Lupa 1993). Many of these pioneer craft breweries are still in operation today and have served as important training grounds for the city's second and now third generation craft brewers. The growth in the city's craft brewing sector has earned it the distinction of being the city with the most breweries in the world (Oregon Brewers Guild 2017). Portland is also the largest craft brewing market in the U.S. and over 50% of the draught beer consumed in Portland pubs and restaurants is brewed in Oregon (Heying 2010).

As a result of its relatively long and significant history with craft brewing, Portland offers a rich case to explore dimensions of the American craft brewing economy. It presents a unique case due to the extent of development in its craft brewing economy and offers a relatively large pool of potential participants to draw from. As the city's craft brewing sector is populated with breweries and brewpubs of a variety of ages and sizes, I was able to enlist participants with a range of backgrounds and experiences with craft brewing. Finally, as craft brewing has been an element of Portland's economy for three decades now, Portland also offered an opportunity for longitudinal study, enhancing our understanding of the in-situ development of a craft manufacturing sector over time.

1.4 Methods

Well-designed case studies rely on multiple sources of evidence. This practice allows for data triangulation and for engagement with multiple contextual factors, imparting richness and rigour to the study (Yin 2014; Bradshaw and Stratford 2010). My research was structured so as to collect data from multiple sources, including interviews, textual and archival research, observational analysis, and spatial analysis. The majority of the data was collected over the course of seven months spanning September 2015 to April 2016. During this time, I visited Portland every month, for at least one- to two-weeks. This practice allowed me to gain a nuanced understanding of Portland's craft brewing sector, as well as an intimate familiarity with the fabric and culture of the city (see Kearns 2010).

1.4.1 Interviews

The bulk of my research draws upon detailed, open-ended interviews conducted with 54 key stakeholders in Portland's craft brewing sector. The majority of these were representatives and workers at local craft breweries, but also included former craft brewers, local beer writers, local planning officials, organizers of local craft beer festivals, officials from local training institutions, and representatives from related industries (e.g. malting, canning, equipment manufacturing, hops growing / distribution). Interviews were selected as the primary research method as they are useful for understanding complex motivations and to investigate meanings, emotions, opinions, and experiences as they allow participants to reflect and express themselves in a deeper way than other methods (Dunn 2010).

Interviews lasted approximately one to two hours each and were conducted using an interview guide that highlighted key concepts and questions. Interview questions were primarily open-ended, encouraging respondents to reveal their own justifications and motivations for ascribing particular meanings to particular actions (see Johnston and Baumann 2010). Interviewees were recruited using purposive sampling with an emphasis on ensuring that a range of breweries and stakeholders were represented. This practice enhances the rigour of interview data by allowing for the collection of diverse input (Dunn 2010). Snowball sampling was also used, with initial participants recommending others who would potentially be interested in participating in the study.

All interviews were recorded and transcribed. Interview data was then analyzed and coded based on key themes. Individual themes were grouped into three broad thematic areas, roughly corresponding to the three characteristics of 'third wave' craft production highlighted above.

Consent was obtained in order to name participants in this study. However, with the exception of Chapter 2, all participants remain anonymous in this dissertation as it was not necessary to identify individuals. As Dunn (2010) notes, naming or otherwise locating an interviewee and associating them with a particular quotation may have personal, professional or political consequences. Thus, it is important to exercise caution when using interview data. In Chapter 2, however, it was important to name participants as the chapter considers the experiences of the city's pioneer craft brewers, who are limited in number, and whose stories are well-known within the craft beer community and the city more broadly. As a result, these interviewees are easily identifiable by their comments.

1.4.2 Textual and Archival Research

Textual and archival research was conducted in order to explore the historical development of Portland's craft brewing sector and the relationship between the craft brewing sector and urban policy. Key sources included: popular books (Dunlop 2013; Wright 2014; Shomler 2015), newspaper and magazine articles, industry statistics, regulatory and policy documents, photographs and other graphic material. Most of these documents were accessed through the Oregon Hops and Brewing Archive located at Oregon State University. The Brewers Association, the national trade association of the craft brewing sector, the City of Portland, and the Oregon State Archives were also valuable sources.

While conducting textual and archival research I attempted to understand each document in relation to the wider context of its creation (see Roche 2010). I also triangulated historical documents with other sources to corroborate information. Textual and archival material was primarily analyzed based on the three dominant themes identified in the discussion above. A more limited set of documents was also analyzed discursively. Key planning documents pertaining to Portland's Central Eastside Industrial District were discursively analyzed for Chapter 4 in order to explore the ways in which the district has been simultaneously constructed and represented in urban policy as both an industrial district as well as a burgeoning centre of

creative production and potential. Key books and local blogs dedicated to Portland's craft brewing economy were also discursively analyzed for Chapter 3 in order to explore the ways in which craft brewers and craft beer are constructed as cultural products with particular symbolic associations. Cultural intermediaries, such as writers and bloggers, operate at the interface of production and consumption and are involved in 'presentation and representation' (Bourdieu 1984; Negus 2002; Rantisi and Leslie 2015). They play a key role in the symbolic production of cultural products by acting as 'gatekeepers,' categorizing and mediating tastes for consumers (Hirsch 1972; Maguire and Matthews 2010; Entwistle 2006; Nixon and du Gay 2002). For this chapter, I analyzed the works of a number of key cultural intermediaries. Specifically, I analyzed two prominent popular books on the rise of craft brewing in Portland (Dunlop 2013; Shomler 2015) and four craft beer blogs based in the Portland area (Portland Beer; Brewpublic; Beervana; New School Beer), as well as various local publications covering the local craft beer scene (*The Oregonian*, *Willamette Week*, *Northwest Brewing News*).

Discourse analysis recognizes that all texts emerge out of specific social contexts and that discourse produces, sustains, and legitimates particular power relations (Waitt 2010; Fairclough 1992). In an industry like craft brewing, discourse can be especially significant in shaping consumer understandings and viewpoints by identifying trends in the sector and highlighting certain people and their experiences as more worthy of attention than others (see Johnston and Baumann 2010). In both instances, my analysis focused on locating and understanding dominant narratives. These narratives were then compared and analyzed against interview and other data, in order to investigate the ways in which dominant narratives construct normative boundaries that silence or exclude alternative perspectives.

1.4.3 Observational Analysis

Observational analysis was conducted in several different settings in order to provide a contextual understanding of Portland's craft brewing economy and to gather complementary evidence to substantiate data collected through interviews and other methods. As Kearns (2010) notes, the intent with such a method is to gain added value from spending additional time in the field, thus enriching a researcher's ability to construct a nuanced interpretation of a particular phenomenon. To this end, observational analysis was collected by spending additional time in

craft breweries preceding or following interviews, exploring the neighbourhoods surrounding individual breweries, and attending craft beer related events such as festivals and organized tours.

This method involved both participant and non-participant observation. As Kearns (2010) notes, "participant observation for a geographer involves strategically placing oneself in situations in which systematic understandings of place are most likely to arise" (p. 246). In order to understand Portland's spaces of craft beer consumption and production, participant observation was conducted in several key settings. First, I attended the monthly meet-ups of a specific, closed, group of approximately fifteen craft brewers, where participants bring ideas and works-in-progress to discuss and receive feedback from their peers. At these meetings, I was able to experience specific examples of collaboration among the city's craft brewers. I also conducted participant observation at local craft breweries and festivals, where I observed the ways in which consumers discuss craft beer with each other as well as their interactions with craft brewers. In these settings, I was concerned with experiencing, through unstructured social relations, various types of interaction within the craft brewing community. As such, this method was selected in recognition of the fact that, in a more structured setting such as an interview, my presence might alter the behaviour and responses of those observed (Kearns 2010). Participant observation in these settings complements the more structured interview data by allowing for the development of a nuanced understanding of industry practices and connections between producers, consumers, and place as they occur in everyday settings and through everyday interactions. Observations were recorded using field notes, which were then transcribed as soon as possible so as to facilitate the memory of specific details about particular interactions. All participants in this portion of the study remain anonymous in this dissertation.

I also conducted non-participant observation in craft breweries and their surrounding neighbourhoods. Rather than focusing on interactions, this method focused on collecting contextual descriptions of brewery design and layout, architecture, and relationship to the surrounding neighbourhood. Observations are a particularly valuable supplement to data gathered by more structured means when interpreting and understanding the production and experience of place is the goal (Kearns 2010). In this instance, observation helped tease out the ways in which craft breweries are connected to place and are implicated in the production of

particular landscapes of consumption. Field notes were kept noting the appearance and décor of the brewery, as well as the sounds and general atmosphere of the space. At the neighbourhood scale, I recorded the land uses and types of businesses in the blocks surrounding craft breweries, noting vacancies, the general level of maintenance, and the relative presence or absence of pedestrian activity. I also took photographs to help maintain an observational record.

1.4.4 Spatial Analysis

In order to understand the spatial distribution of craft brewing, I mapped the locations of the city's craft breweries and brewpubs using ArcGIS. Locational information was accessed from the American Breweriana Association Brewery Database, the Oregon Brewers Guild, the Oregon Liquor Control Commission, and the Brewers Association. Chapter 4, in particular, draws upon this method, highlighting one prominent cluster of craft breweries in Portland, that of the Central Eastside Industrial District.

1.5 Dissertation Outline

Chapter 2 engages with the theme of spatial agglomeration and local embeddedness, considering the role of place-specific material and institutional factors in the rise of Portland's craft brewing sector. The chapter highlights the role of regional legacies of hops research and growing, brewing and other fermentation industries, as well as historical regulatory and taxation structures and local culture in creating a unique environment conducive to the success of early craft breweries. The chapter also highlights processes of industrial and institutional co-evolution between the craft brewing sector and the broader regional economy. Specifically, it discusses the reciprocal evolution of the region's hops growing industry and the ways in which this co-evolutionary process has served to embed the craft brewing sector in Portland, thereby arguing for a need to recognize that material factors of production can play a key role in the evolution of craft manufacturing sectors not only as place-based inheritances that can be reconfigured into new productive capacities, but also as co-evolving entities of contemporary craft economies. The chapter also traces the development of key institutional supports that have developed out of the collaborative efforts of the city's craft brewing community, including a unique culture of

collaboration among Portland's craft brewers that now serves as a key source of knowledge and skill transmission, innovation, and creativity. In doing so, I argue for recognition of the key role that institution building can play in embedding emergent craft sectors in particular locales.

Chapter 3 engages with the theme of altered perceptions of manufacturing work as a result of the contemporary resurgence of craft production. Despite the hybrid nature of craft production systems, which contain elements of the creative industries as well as more traditional manufacturing sectors, this chapter traces an emerging connection between craft brewing and the creative industries based on the glamourization of work. In contrast to this trend, however, the chapter also highlights the everyday lived experiences of work among Portland's craft brewers, revealing precarious working conditions and 'uncreative' aspects of work in the sector. I also consider the effects that glamourization is having on working conditions, arguing that this trend is playing a significant role (re)creating precarious working conditions by raising entry barriers while keeping wages low.

Chapter 4 engages with the theme of industrial / cultural fusion and the production of new workspaces by highlighting the unique spatial and locational requirements of craft breweries. The chapter discusses the importance, in particular, of the co-location of production and consumption spaces as a means of enlisting consumers in the production process. It also considers the relationship between craft breweries and urban land use policy within Portland's Central Eastside Industrial District, a neighbourhood that houses a significant concentration of the city's breweries. In particular, it traces the development of policies for the district aimed at remaking the traditional industrial district into a cutting-edge mixed use neighbourhood. In the process, it highlights the complexity of the relationship between the craft brewing sector and such land use initiatives by revealing how craft breweries have both benefitted from and been threatened by the policy-supported infiltration of creative industries and residential uses, as well as various quality of life improvements.

Chapter 5 summarizes key findings, highlights the contributions and implications of the research, and offers recommendations for future research.

Chapter 2
Becoming 'Beervana:' Institutions and Materiality in the Evolution of Portland, Oregon as a Craft Brewing Hub

2.1 Introduction

Economic geographers have shown a growing interest in the current renaissance of small-scale craft production, apparent in industries from food, to furniture, to fashion (Donald 2009; Leslie and Reimer 2006; Heying 2010; Paxson 2012; Gibson 2016). Craft modes of production rely on traditional knowledge and materially-specific techniques to produce physical objects (Carr and Gibson 2016). They involve skill that is honed over time, and that is embedded in particular places (Sennett 2008; Banks 2010; Warren and Gibson 2014; Blundel and Smith 2013; Gibson 2016). In this way, contemporary craft production is imbued with a strong sense of place and of the past. To date, however, work in this area has largely addressed contemporary issues, such as the precarious nature of craft work (Dawkins 2011; Hughes 2012; Jakob 2013; Warren 2014; 2016), and connections between new technologies and craft entrepreneurialism (Luckman 2013; 2015; Clark 2014). Very little attention has been given to the conveyance of craft practices over time, or to the rise of craft clusters in particular locales. Recent engagements with craft production have recognized this gap in the literature and have highlighted a need to place the emergence of craft-based manufacturing in historical and geographical context (see Gibson 2016; Patchett 2017; Gibson and Warren 2018). In line with these scholars, this chapter articulates a framework for understanding the evolution of contemporary geographies of craft production.

This chapter builds directly upon the work of Chris Gibson and colleagues, who advance an evolutionary economic geography approach as a way of understanding the place- and path-dependent development of craft industries (Gibson 2016; Gibson and Warren 2018; see also Martin and Sunley 2006; Martin 2010; Boschma and Frenken 2006; Essletzbichler and Rigby 2007; Boschma and Martin 2011; Oosterlynck 2012). Because of craft's material basis, Gibson (2016) argues that, while evolutionary approaches in economic geography lend some valuable insights, they must engage more deeply with labour processes and their attendant materialities to be of use for understanding craft industries. In making this argument, Gibson's work advances a critically grounded evolutionary approach that engages with questions of labour process and

material inheritance, as well as the power relations and logics of capital accumulation that shape their development over time (see Gibson 2016; Gibson and Warren 2018).

This chapter seeks to further Gibson's approach in two primary ways. First, I merge Gibson's focus on labour process and material inheritance with an emphasis on institutions as highlighted in evolutionary economic geography approaches. Institutions have long been recognized as playing an important role in shaping economic development trajectories, as they form the social, legal and cultural conditions in which the economy is embedded. As a result, economic geographers have argued that the evolution of regional economies cannot be fully understood without consideration of the formal and informal institutions on which economic interaction depends (Grabher 1993; Storper 1995; 1997; 2013; Amin 1999; Martin 2000; MacKinnon et al. 2009; Rafiqui 2009; Gertler 2010; Hassink et al. 2014). To date, however, the presence and role of institutions in shaping contemporary craft economies has received little attention (for a notable exception see Blundel and Smith 2013). While institutions have been shown to play a significant role in the emergence and development of the broader cultural and creative industries (see Mommaas 2004; Leslie and Rantisi 2011), their potential function in the emergence of contemporary craft manufacturing clusters has been overshadowed by general descriptions of craft revival and its broad cultural underpinnings (see Ross 2004; Bratich and Brush 2011; Dawkins 2011). As a result, there is a need for further research that considers the role of local institutional context in the emergence of contemporary craft manufacturing sectors.

Second, I combine Gibson's (2016) focus on the emergence of craft sectors with an emphasis on processes of ongoing evolution, and the ways in which these processes are entangled with material resources and the institutional environment. Here, I follow work in evolutionary economic geography that argues for recognition of the significance of co-evolution between firms and institutions and the role of purposive action in the evolution of new development paths (Mommaas 2004; Martin and Sunley 2006; Boschma and Frenken 2009; MacKinnon et al. 2009; Schamp 2011; Ter Wal and Boschma 2011; Leslie and Rantisi 2011; Bathelt and Gluckler 2014). In doing so, I contribute to Gibson's (2016; Gibson and Warren 2018) argument regarding the importance of the material basis of production in the evolution of craft manufacturing sectors by arguing that the resurgence of craft production has not only occurred as a result of material inheritances latent in the economic landscape, but has also led to the corresponding evolution of related material resource industries.

The chapter begins by reviewing recent attempts to historicize contemporary craft production, highlighting Gibson's (2016) focus on labour process and materiality in particular, and connecting it to literature in economic geography that emphasizes the role of institutions and co-evolution in the creation and sedimentation of new development paths. Following this, I introduce an empirical analysis of the craft brewing sector in Portland, Oregon, and its development since the 1980s. Dubbed 'Beervana,' Portland has emerged as the poster child of the U.S. craft brewing sector. By 1993 Portland had seven craft breweries, more than any other city in the U.S., and beer writers across the country and beyond were beginning to recognize a fledgling craft beer culture specific to the region (Lupa 1993; Ramsay 1990; Tripp 1990; Schmidt 1993). Today, the Portland metropolitan area is home to 105 craft breweries, making it the city with the most breweries in the world (Oregon Brewers Guild 2017). This analysis draws upon qualitative interviews with Portland's craft brewers, brewery owners, and others involved in the industry, as well as ethnographic research in breweries, and archival research conducted through the Oregon Hops and Brewing Archive located at Oregon State University. Analyzing the case, I first emphasize the dual role that place-specific institutional and material inheritances have had in the emergence and initial success of Portland's craft brewing sector. I then chart the co-evolution of craft brewing knowledge and skill with agricultural science and the cultivated landscape by tracing the evolution of the region's historic hops growing industry alongside the sector. Here, I build on Gibson's (2016; Gibson and Warren 2018) focus on the material basis of production by arguing that resource materialities matter to an evolutionary understanding of contemporary craft production not only as place-specific inheritances that can be reworked into new craft modes of production, but also as co-evolving industries that are being repositioned and transformed as a result of the renewed popularity of craft production. In the final empirical section, I trace the development of favourable institutional arrangements alongside Portland's craft brewing sector, and the role of purposive action on the part of craft brewers in creating them. In doing so, I argue that the success of new craft clusters rests on their ability to develop the critical infrastructure necessary to support ongoing processes of socialization, inspiration, experimentation, and knowledge exchange (see also Mommaas 2004; Leslie and Rantisi 2011).

2.2 The role of institutions and the material in an evolutionary economic geography of craft production

Inspired by evolutionary approaches in economic geography, and specifically calls for a deeper engagement with broader processes of capital accumulation, social regulation and uneven development, as well as with questions surrounding the precise role of geography in the process of economic evolution (see MacKinnon et al. 2009; Pike et al. 2009; Oosterlynck 2012; Hassink et al. 2014; Martin and Sunley 2006; Martin 2010), Gibson (2016) offers an emerging framework for understanding the rise of contemporary craft-based manufacturing in particular locales. Drawing on the case of the craft boot making cluster in El Paso, Texas, Gibson (2016) demonstrates how the continued presence of leather traders and the use of leather as a key input material in boot making, together with its necessary manipulation by human hands with considerable haptic skill, has allowed El Paso's boot making industry to persist and transform from craft production to mass manufacturing and back again. As such, Gibson (2016) argues that latent skills in the local labour market and their reconfiguration into new communities of practice, as well as the presence and availability of particular input materials are key factors in the contemporary resurgence of craft production (see also Blundel and Smith 2013; Patchett 2017). As Gibson (2016) argues, "[s]uch aspects of materiality linger in city landscapes, in the bodies of manual workers, and become resources that direct new geographies of craft production in an era of cultural capitalism where authenticity is a key source of value" (p. 65).

The material environment has been shown to be a significant contextual and place-specific factor in the development of economic clusters more generally, particularly in those with ties to cultural and creative production (Connell and Gibson 2003; Gibson 2005; Hutton 2006; 2008; Rantisi and Leslie 2010). Older inner city neighbourhoods have proven particularly attractive to creative industries as a result of their unique urban form. Hutton (2006), for example, draws on Soja's (2000) notion of the 'industry-shaping power of spatiality' to demonstrate how the physical layout of older inner-city districts lends a feeling of boundedness that can give identity to new industrial clusters. Hutton (2006) also draws on Markus' (1994) analysis of principal building typologies to argue that the internal configuration and design of the older industrial buildings that make up such neighbourhoods allow for functional adaptation and offer a means of aesthetic distinction, distancing creative industries from the mainstream urban economy and the generic office buildings that it occupies (see also Rantisi and Leslie 2010). The particular aesthetic qualities of historic industrial buildings can also serve as a source of inspiration for creative

production and a way of connecting to historic legacies of production (Rantisi and Leslie 2010; Mathews and Picton 2014). Material aspects of the built environment can also play a role in mediating creative production by influencing the kinds of interactions that can take place, as well as the resulting form and qualities of the creative product (Molotch 2003). Gibson (2005), for example, notes how the unique configuration and construction of music recording studios influences the ways that sound waves travel, thus affecting the sound quality of the final recording. Similarly, Rantisi and Leslie (2010) show how low rents afford creative producers in Montreal's Mile End greater opportunities for balancing commercial imperatives with creativity by mediating the financial risks associated with experimentation. The density and mix of land uses present in many inner-city creative districts is also an important material factor in creative production, offering opportunities for gathering, for creative contemplation and production outside the workspace, and for the development of community and collaboration among creative producers working in different fields (Watson et al. 2009; Lloyd 2010; Rantisi and Leslie 2010).

The material environment as well as the presence and availability of particular material inputs are especially important contextual factors in the evolution of contemporary craft manufacturing sectors, as these sectors combine creative production with manual work and the making of physical objects (Carr and Gibson 2016; Gibson 2016). As a result, craft skills are necessarily developed on the basis of particular input materials. Raw materials play a role in defining the labour process, and thus the spatial organization of craft workspaces, and the distribution of craft knowledge across time and space (Ingold 2010; Carr and Gibson 2016; Gibson 2016). As craft practices become sedimented in place over successive generations, they become a defining feature of place and, as Warren and Gibson (2014) suggest, a form of evolving local cultural heritage (see also Thomas et al. 2013). In their study of the surfboard manufacturing industry, Warren and Gibson (2014) trace the evolution of surfboard making techniques in Hawaii, California, and Australia and demonstrate how contemporary makers simultaneously maintain, challenge, revive, and update cultural traditions of surfboard making. As they explain:

> [T]he handmaking of surfboards continues to rely on the same environmental knowledge, surfing ability, and specialized skills as required by the earliest Polynesian craftsmen… The skills have been inherited and have evolved from Pacific Islander origins. Modern technological advances have made available more sophisticated tools and materials for mass production, yet crafting surfboards by hand nonetheless continues to draw on the intangible

> stories, rituals, skills, processes, and even materials traceable back to ancient Hawaiian surfers (Warren and Gibson 2014, p. 231).

Labour and material resources are factors that have been relatively neglected within the evolutionary economic geography literature, which has tended to emphasize firm-specific routines, their concentration, and selective diffusion as the driver of economic evolution (Boschma and Frenken 2006; Frenken and Boschma 2007; Essletzbichler and Rigby 2007; Boschma and Martin 2011; see MacKinnon 2017 for a notable exception). However, as Teece and Pisano (1994) argue, other resources, including contextual factors as well as material inputs and strategic decisions regarding their deployment, can play an equally significant role in shaping firm behaviour (see also Penrose 1959). As such, including labour and material resources in an evolutionary analysis of contemporary craft production offers several key contributions to evolutionary thinking with economic geography. As Gibson (2016) argues, these dimensions: underscore the significance of lock-ins between product design and labour process, thereby contributing to our understanding of how manual skills and production techniques endure in supposedly post-industrial regional economies; and, recognize that place-specific inheritances of labour process have an attendant materiality in the form of machinery, workshops, input materials, and other infrastructure, which afford economic actors with particular opportunities (see also Massey 1984). Finally, a focus on labour process and material resources also offers a contribution and critique to theorizations of the firm in evolutionary economic geography approaches by highlighting the importance of these dimensions to firm behaviour.

2.2.1 The role of institutions in the evolution of contemporary craft sectors

While Gibson's (2016) framework offers a significant contribution to an historicized understanding of contemporary craft manufacturing, if we are to develop a substantive understanding of the evolution of craft industries we must also attend to the role of the broader economic landscape and, in particular, to the ways in which it is instituted in particular places. Recognizing the economy as socially embedded, geographers have argued that institutions provide a crucial foundation for the operation of economic processes (Storper 1995; 1997; 2013; Amin 1999; Martin 2000; MacKinnon et al. 2009; Rafiqui 2009; Gertler 2010; Zhang 2013; Peck 2013; Hassink et al. 2014; see also Polanyi 1957). Institutions can be defined as "forms of ongoing and relatively stable patterns of social practice based on mutual expectations that owe

their existence to either purposeful constitution or unintended emergence" (Bathelt and Gluckler 2014, p. 346). They operate at specific scales and may be formal, based on legislative structures, regulations, or rules, or informal, based on shared cultural norms and conventions. In this broad definition, institutions are seen as not only constraining economic behaviour, but also mediating that behaviour by influencing and enabling individual values, preferences, habits, expectations, and actions (Hodgson 2004; 2006).

Placing emphasis on the institutional foundations of economic activity, geographers have argued that regional economic development trajectories are both path- and place-dependent (see Grabher 1993; Storper 1995; 1997; Cooke and Morgan 1998; Cooke et al. 1998; Maskell and Malmberg 1999; Martin and Sunley 2006; Martin and Simmie 2008; MacKinnon et al. 2009; Andersson and Koster 2011; Leslie and Rantisi 2011; Ma and Hassink 2013). Borrowed from evolutionary economics, the concept of path dependence underscores the importance of context and history to economic development, implying that future economic possibilities are strongly contingent upon current and historical conditions (Martin and Sunley 2006; Martin 2010). Path dependent processes are argued to operate through a system of dynamic increasing returns, whereby the significance of certain historical factors or events reverberate through the economy as various externalities and learning mechanisms produce a positive feedback loop that reinforces particular development paths (see David 1985; Arthur 1989). A particular development path might arise, for example, as a result of the entry of a new entrepreneur or the discovery of a new technology, with path dependence occurring as a consequence of reinforcing spillover effects that can be difficult for other regions to replicate (e.g. the development of training institutes and a specialized labour pool, the entry of suppliers). As a result, economic geographers have noted the locally-contingent nature of the basic mechanisms of path dependence, thereby arguing that path dependent processes are also strongly place dependent (Martin and Sunley 2006; MacKinnon et al. 2009; Leslie and Rantisi 2011; see also Grabher 1993; Storper 1995; 1997; Cooke and Morgan 1998).

As Martin and Sunley (2006) argue, place dependence implies that patterns of regional economic differentiation are simultaneously both the product of path dependent processes in the economic landscape and a critical determining factor in the direction of those processes (p. 410). Much of the path dependence literature has, however, focused on the former, delineating how certain paths become progressively locked-in (e.g. Grabher 1993; Storper 1995; 1997). As a result, there is a relative dearth of research that considers processes of path creation or destruction (Martin

and Sunley 2006; see Leslie and Rantisi 2011 for a notable exception). Canonical models of path dependence developed in evolutionary economics tend to assume that the emergence of novelty is essentially random, suggesting that there are innumerable possibilities for path creation and ignoring the role of existing spatial structures in shaping new development trajectories. This presents a curious contradiction where path dependence matters after a new industry or technology has emerged but plays no role in shaping that emergence (Martin 2010). Economic geographers have, however, demonstrated that the pre-existing industrial and institutional structures of a region do indeed play a significant role in influencing the emergence and success of new development paths (Harvey 1982; Massey 1984; Saxenian 1994; Amin 1999; Martin and Sunley 2006; MacKinnon et al. 2009; Leslie and Rantisi 2011; Oosterlynck 2012; Hassink et al. 2014). Institutional inheritances, in particular, can be critical factors conditioning regional capacities for innovation, thus shaping how particular places respond to wider processes of globalization and uneven development (Saxenian 1994; MacKinnon et al. 2009). Institutional actors, such as the state, can also play an important role in stimulating new development paths by providing incentive programs, grant funding, workspace, and other resources to start-up businesses in particular fields (see Martin and Sunley 2006; Mommaas 2004; Leslie and Rantisi 2011). Moreover, local institutional inheritances can themselves be a key source of new development paths. Leslie and Rantisi (2011), for example, show how locally-specific cultures of street performance and a lack of historic circus conventions in Montreal, Canada, provided the aesthetic referents and sense of freedom and risk-taking that enabled the emergence of a new genre of circus arts epitomized by the Cirque du Soleil.

Institutional inheritances have historically played a particularly significant role in the conveyance of craft practice over time, and thus processes of path dependence in craft industries. The guild, in particular, has been a durable institution governing the standards of craft practice since medieval times. Craft workshops were historically organized into a geographically-defined system of guilds, which provided an arena for collaboration and the transmission of craft knowledge, and helped secure a market for craft products by defining trusted standards of quality (Thomas et al. 2013; Krugh 2014). Guilds also established a set of instituted social and labour relations; craft labour was organized into a hierarchy of apprentice, journeyman, and master, based on the accrual of skill over time (Sennett 2008; Patchett 2017). Aside from the guild, however, the presence and role of institutions in shaping craft economies, and particularly contemporary craft economies which often do not have associated guilds, has received little

attention (for a notable exception see Blundel and Smith 2013). Instead, the evolution of contemporary craft economies has been ascribed to broader cultural-economic shifts, such as the rise of fragmented consumer cultures, a growing preference for 'authentic' and bespoke products, and the increasing importance of symbolic and aesthetic qualities in products, as well as the rise of anti-globalization activism and its focus on the perils of mass production and outsourcing (see Ross 2004; Bratich and Brush 2011; Dawkins 2011; Jakob 2013). While these factors have certainly played a role in the resurgence of craft production in the contemporary period, they lack an understanding of the geography of craft industries and the ways in which they have developed in particular places at particular times.

2.2.2 Co-evolution and the institutions and materiality of craft production

In addition to providing a crucial foundation to evolutionary processes in the economic realm, recent evolutionary work in economic geography has argued for a need to treat the institutional environment as a co-evolving element of the space economy (Boschma and Frenken 2009). Co-evolution implies that industries and institutions not only evolve alongside one and other, but also have a significant impact on each other's evolutionary trajectory (Murmann 2003). While all elements of the economy can be argued to be engaged in simultaneous processes of evolution, co-evolution is reserved for specific cases involving the parallel and reciprocal development of economic entities (Schamp 2011, p. 435). As a result, co-evolution offers a conceptual lens that recognizes the role of institution building on the part of firms and other economic actors in processes of economic evolution, thus enabling a reflexive view of the relationship between economic action and the institutional environment, whereby economic action both conditions and is conditioned by the institutional environment (Boschma and Frenken 2009; Boschma and Capone 2015; Bathelt and Gluckler 2014). This view departs from the traditional literature on institutions and institutional change, which has tended to emphasize stability and endurance in the institutional environment and has considered exogenous forces as the only source of change, drawing instead on theories of gradual institutional change that recognize processes of disruption, functional transformation, and adaptation based on the actions of internal actors (Martin 2000; Thelen 2003; Streeck and Thelen 2005; Mahoney and Thelen 2010).

Institutional co-evolution is particularly significant in emergent sectors, like contemporary craft sectors, because they represent a new form of economic development and, therefore, are unlikely to be endowed with the institutional support structures of more established industries. As part of

the contemporary resurgence of craft production, craft forms of manufacture have (re)emerged in industries where it was all but eradicated as a result of the growth of modern mass production systems. This is particularly the case in the American brewing sector, where consolidation in the post-Prohibition era created an economic landscape dominated by a small handful of multinational brewing companies focused on the mass production of American-style lager (McGahan 1991; Tremblay et al. 2005). Craft production in these sectors marks a significant departure from conventional, mass production modes of manufacture, relying on skilled labour and a dedication to quality that defies capitalist modes of competition based on price. Craft labour processes are slow, allowing time for reflection and thus combining the design and manufacture of products in an iterative fashion (Leslie and Reimer 2006; Sennett 2008; Hughes 2012). Craft producers are motivated by a deep interest in the materials of production, and the ways that they might be molded into specialized products (Sennett 2008; Warren and Gibson 2014). As I demonstrate in the case below, these differences mean that the success of contemporary craft sectors in particular places has largely depended on their ability to develop institutions through which to organize and sustain productive and innovative capacity (see also Mommaas 2004; Leslie and Rantisi 2011).

In addition to tracing the mutually-dependent evolution of institutions and industries, co-evolution can also account for the co-location of interlinked sectors within a particular place. In order to do so, however, Schamp (2011) argues that it is necessary to foreground mechanisms of reciprocal reinforcement as there are, of course, many sectors that supply goods and services that are important for the evolution of other sectors, but whose own evolution depends only very little on the presence and evolution of those sectors. As a result, industrial co-evolution is generally seen as a relatively rare event, which may explain why this form of co-evolution has received scant attention in economic geography to date. However, industrial co-evolution is a potentially significant process in the evolution of contemporary craft economies. The material basis of craft production and the emphasis placed on quality and manual fabrication means that craft sectors have a particularly intimate connection to resource industries. Gibson and Warren (2018), for example, highlight connections between craft guitar making and the forestry industry in Australia, noting, in particular, the ways in which histories of resource exploitation and stewardship in the forestry sector have afforded craft guitar makers with particular opportunities. As such, they argue for greater recognition of the role of resource materiality in the evolution of contemporary craft industries (see also Gibson 2016). Through the case below I build on this

argument by demonstrating a need for an attendant recognition of processes of co-evolution between emergent craft sectors and the resource industries on which they rely.

In the case below, I explore the rise of Portland's craft brewing sector through the combined lens of labour process and material inheritance emphasized by Gibson (2016) and of institutional inheritance emphasized by the dual concepts of path- and place-dependence. In doing so, I highlight both the specific material legacies that offered craft brewing's early entrepreneurs the knowledge, skills, and resources to successfully produce craft beer, as well as role of the pre-existing institutional environment in enabling that success. I also highlight the effects of the rise of Portland's craft brewing sector on the region's hops growing industry, tracing the co-evolution of agricultural science and the cultivated landscape alongside craft knowledge and skill. Demonstrating how the rise of one particular craft sector has stimulated changes in a related resource industry, I build on Gibson's (2016; Gibson and Warren 2018) focus on the material basis of production in the evolution of craft production sectors by arguing that resource materialities are significant to an evolutionary understanding of contemporary craft production not only as place-specific legacies, but also as co-evolving elements of broader craft economies. Finally, I highlight the evolution of supportive institutions alongside the growth of the craft brewing sector. In doing so, I argue that while institutional structures may create conditions favorable to the emergence of contemporary craft production clusters, their success depends on the ability to develop critical infrastructure and institutional arrangements that support their ongoing function as an environment of creativity and innovation (see also Mommaas 2004; Leslie and Rantisi 2011).

2.3 The road to 'Beervana:' the history of brewing in Portland

While the growth of craft brewing since the 1980s forged Portland's reputation as 'Beervana,' Portland has long had connections to the brewing industry. Commercial brewing first came to Portland with the rush of settlers over the Oregon Trail in the 1850s, while colonization also brought hops, a key ingredient in beer brewing, to Oregon's Willamette Valley (Dunlop 2013). German-born Henry Saxer opened the city's first brewery in 1852 and was soon joined by a number of other entrepreneurs hoping to capitalize on Portland's rapid population growth during the last half of the 19th century (Dunlop 2013). Beer, at the time, was a local product. Technological limitations in packaging and purification meant that brewing had to occur close to

the site of consumption. As Shears (2014) notes, these limitations lent themselves to an industrial landscape populated by a plethora of small brewers, as breweries were able create economies of scale within very small geographic areas. In Portland, breweries sprang up throughout the growing city. By 1890, the city boasted 48 breweries, the most it would house for over a century (Dunlop 2013).

The most successful Portland brewery to open during the latter part of the 19th century was Henry Weinhard's City Brewery, later renamed the Henry Weinhard Brewery, which opened on West Burnside Avenue in 1862. By the early 1880s, Weinhard's brewery was the largest in the Pacific Northwest and was growing rapidly (Dunlop 2013). Oregon was also on its way to becoming the nation's foremost producer of hops. Indeed, by the early 20th century Oregon was home to one of the largest hops growing regions in the world (Eckhardt 1984; Figure 1).

Figure 1: Hop pickers at Meyer's Hop Yard, Oregon, c. 1908. Courtesy General Oregon Album, Special Collections and Archives Research Center, Oregon State University Libraries, Item Number: WilliamsG:GO

Prohibition came to Oregon in 1916, four years earlier than national prohibition, forcing local breweries to either close or reinvent themselves. The Henry Weinhard Brewery was able to survive Prohibition by producing soda fountain beverages, syrups, ginger ale, and other

nonalcoholic beverages. These products were not nearly as lucrative as beer, however, and the company reported significant losses during Prohibition (Dunlop 2013). As a result, towards the end of Prohibition, Portland's two largest breweries, the Henry Weinhard Brewery and Arnold Blitz's Portland Brewing, merged to form Blitz-Weinhard Brewing.

The newly formed Blitz-Weinhard made a crucial move towards vertical integration by forming the Great Western Malting company in 1934, along with a consortium of other Pacific Northwest brewers and grain producers (Great Western Malting 2017). The malt plant was, and still is, located in Vancouver, Washington, across the Columbia River from Portland. The 1930s also saw the U.S. Department of Agriculture (USDA) establish a hops research laboratory at Oregon State University (OSU) in Corvallis, Oregon. The creation of the lab was the result of a severe outbreak of downy mildew, a fungal disease that devastated Oregon's crop, and is one illustration of the importance that institutions have played in the growth of the industry over time. Although Washington state had replaced Oregon as the nation's top producer of hops by the mid-1940s, the research laboratory continues to operate at OSU and has helped form a long-standing connection between Oregon and hops. Indeed, many of the public varietals that have emerged from the lab have locally-inspired names (e.g. Cascade, Willamette).

Along with advances in hops growing and utilization, beer production in the 20th century was affected by the discovery of pasteurization and the invention of the modern crown cap. These new technologies allowed larger brewers, like Blitz-Weinhard, to improve efficiency, lower production costs, and, ultimately, undercut the prices of smaller, local breweries (Shears 2014). As a result, the early 20th century marks the beginning of a period of substantial consolidation in the American brewing industry. This trend strengthened throughout the post-war period such that, by the late 1960s, the industry was firmly under the control of only a handful of very large brewing companies (Tremblay et al. 2005; McGahan 1991).

By the late 1970s, less than 50 breweries remained in production in all of the U.S. (Elzinga 2011). One of these was Portland's Blitz-Weinhard brewery, the only brewery in the city at that time. Like independent regional breweries elsewhere, however, it was struggling. While the brewery had profited from a regional focus throughout the 1960s, as the 1970s progressed, it had difficulty competing with the increasing power of national brands like Budweiser and Miller. While it found some success launching specialty products, the ownership of Blitz-Weinhard eventually decided to sell the brewery to Pabst in 1979. Beer consumption was in decline

amongst Americans at that time, which meant that many brewing companies were faced with too much production capacity and not enough demand (Dunlop 2013). Large brewers were able to take advantage of this situation by purchasing smaller regional breweries, like Blitz-Weinhard, and consolidating production in larger, more efficient plants.

It is within this economic landscape that the U.S. craft brewing sector, defined by independent ownership, small-scale production, and traditional and innovative brewing methods and ingredients, began to emerge in the 1980s (Brewers Association 2018c). In Portland, Dick and Nancy Ponzi, who were also pioneers in Oregon's wine industry, opened Bridgeport Brewing Company in 1984 (Interviews; Dunlop 2013). They were followed by brothers Kurt and Rob Widmer, who opened Widmer Brothers Brewing in 1985, and friends Art Larrance and Fred Bowman, who started Portland Brewing Company in 1986 (Interviews; Dunlop 2013). In addition, brothers Brian and Mike McMenamin, who had several pubs around the city by the mid-1980s, started brewing out of their Hillsdale Pub in 1985 (Interviews). All of these breweries remain in operation today.

2.4 'Beervana' takes shape: the rise of craft brewing in Portland

2.4.1 Material and institutional inheritances

Starting a small-scale brewery in the 1980s was no easy feat. Early craft brewers faced significant challenges associated with securing financing, equipment, raw materials, and customers. Brewing requires a significant up-front capital investment in the form of equipment. At the time, however, both capital and equipment were scarce. Banks were hesitant to provide loans to a start-up business in an industry that was experiencing layoffs and plant closures, which meant that most early craft brewers had to rely on personal finances, as well as loans and investments from family and friends (Interviews; Weiler 2000). In addition, while today there are numerous manufacturers supplying brewhouses5 to the craft brewing industry, in the 1980s equipment manufacturers mirrored the conditions of the brewing industry; they made large-scale brewing systems for large-scale brewing operations. Brewing equipment for a small-scale

[5] A brewhouse refers to the entire system of individual vessels used in the creation of beer (Villa 2012).

operation was simply not available. Finally, if a brewery was able to secure financing and appropriate equipment, it still faced the challenge of securing raw materials, and accounts and customers in a declining market dominated by powerful national brands and niche imports.

Within this context, Portland's pioneer craft brewers had several advantages. Portland's early craft brewers benefitted from their location in relation to key natural resources. The proximity of Great Western Malting in Vancouver, WA, for example, enabled craft brewers to purchase grain effectively as brewers were able to drive to the plant and pick up grain themselves, rather than having grain shipped to the brewery. Thus, Portland's craft brewers were able to save on shipping costs and could save space by not having to stock up on raw materials to make a budget. However, because malting plants were geared towards large shipments, purchasing grain directly required a level of creativity and amenability on the part of malting giant Great Western. As Great Western Malting's Teri Fahrendorf explains:

> Great Western took [craft brewers] seriously… What [Portland's craft brewers] would do is get their pick-up truck and get a tarp, line the bed with a clean tarp and drive over here to Great Western Malting Co… Great Western Malting would tell them where to back up under a silo… and then they would open up the barn and fill the thing. They would weigh the truck before and after, drive on to the scale that the big trucks use, and it's like, 'ok, that's a 1 tonne pick-up and it weighs 1500 lbs' or something. We will put a tonne of malt in there, so now it's up to 3700 lbs or whatever. So, then they would take the difference and then charge them. That was a big reason why Portland could really take off in the early days (personal interview, May 19, 2016).

Just as the continued presence of quality leather traders in El Paso, Texas has played a role in the development of that city's craft boot making industry, the proximity of Great Western Malting has served as a 'retention mechanism' for Portland's brewing industry by offering craft brewers privileged access to a key raw material (see Gibson 2016; Gluckler 2007). Moreover, the continued significance of the Willamette Valley as one of the nation's top hops research and growing regions meant that brewers had preferential access to another key raw material as well as to cutting-edge knowledge regarding its utilization. Rather than relying on hops purchased from homebrewing shops or through formalized hops contracts (which usually span several years, and thus present an added source of financial risk for start-up breweries) Portland's early

craft brewers were able to drive directly to the hops farms of the valley in order to purchase hops (Interviews).

The malting and hops growing industries both had established national and international distribution networks, meaning that early craft brewers in other cities would have had access to the same resources albeit at a greater expense. However, the proximity of the Willamette Valley hops growing region also provided an early source of creative inspiration for the city's brewers, highlighting the role of the material environment in mediating processes of creative production (see Molotch 2003; Gibson 2005; Watson et al. 2009; Rantisi and Leslie 2010; Lloyd 2010). As Bridgeport Brewing Company's first brewmaster, Karl Ockert, explains:

> [In the mid-1990s] we had an Australian that was running [the Bridgeport brewery]… and he kind of said, "Guys we need to come up with a new beer. You are in the middle of one of the biggest hops growing regions in the world. Why don't we do something that's hop forward?" No one was making India Pale Ale (IPA) back then, believe it or not. So, twenty years ago we started making Bridgeport IPA and everyone thought we were crazy. There was no one that was going to drink a bitter, hop-led beer like that. I think amber ales were all the rage at the time and flavoured fruit hefeweizens and things like that. So, everyone thought we were nuts. [But] we [made it], and it was like instantly our best-seller. We won all kinds of world awards and stuff like that. Now, if it doesn't say 'IPA' on the label, it probably won't sell… It drives me a little crazy now because it's like, boy, we really lifted Pandora's box and took the lid off of that! (personal interview, March 25, 2016).

The production of the Bridgeport IPA marks the beginning of a now decades long interest in the rediscovery and reinterpretation of the traditional IPA style among not only Portland's craft brewers, but craft brewers around the globe. In Portland, this process has led to the development of other hop-forward styles utilizing the region's hops, as well as a movement towards using fresh hops in the brewing process. As brewer Alan Taylor explains, the ability to use fresh hops in the brewing process is relatively unique to the Portland craft brewing sector:

> I can be down in [the Willamette Valley hops growing region] in 45 minutes. This past year we pulled hops right off the conveyor belt as they were being plucked from the vine. So, they cut the vine and 10 minutes later they're being plucked and going in my canvas bag. I drive up to the brewery and put them right in the whirlpool. You can only do that in Portland, Oregon and Yakima [Washington]. Those are the only places you can turn around literally

> within hours – off the vine and into the kettle[6] within an hour. There are only two places in the U.S. that you can do that on a regular basis and we're one of them. (personal interview, January 20, 2016).

The availability and prolific use of hops in the brewing process has allowed Portland's craft brewing sector to develop a distinct, place-specific reputation based on the production of particularly 'hoppy' beer styles, and the creative possibilities associated with the ability to use fresh hops in the brewing process (Dunlop 2013; Foyston 2014; Korfhage 2018; Interviews). As in other creative milieu, this reputation serves as a powerful attractor to craft brewers and entrepreneurs as the ready availability of fresh hops and proximity to the hops research laboratory are material factors that cannot be fully replicated in other regions (see Leslie and Rantisi 2011).

However, the more crucial factors in the early success of the craft brewing sector in Portland were a key set of place-specific institutional and industrial legacies unique to the city. First, Portland's early craft brewers benefitted from the presence of a strong regional pub culture that had developed as a result of Oregon's liquor licensing laws. These laws separated taverns, which could sell beer and wine only, from bars, which could also sell hard liquor and spirits. Bar licenses were more expensive and notoriously harder to obtain, which made them scarce. This, according to Stuart Ramsay, a beer writer and manager of Portland's first craft brewpub, effectively created a beer culture in Portland (personal interview, March 4, 2016). Because they could only sell beer and wine, taverns often had at least three to five tap handles, whereas a bar might only have one (Eckhardt 1991; Wright 2014; Figure 2). As a result, by the mid-1980s draught beer represented 22% of Oregon's total beer market, whereas in California draught beer represented only 3% of the total market (Bowman and Larrance 1985).

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[6] A brewing kettle is a piece of brewing equipment in which wort is boiled with hops (Oliver 2012).

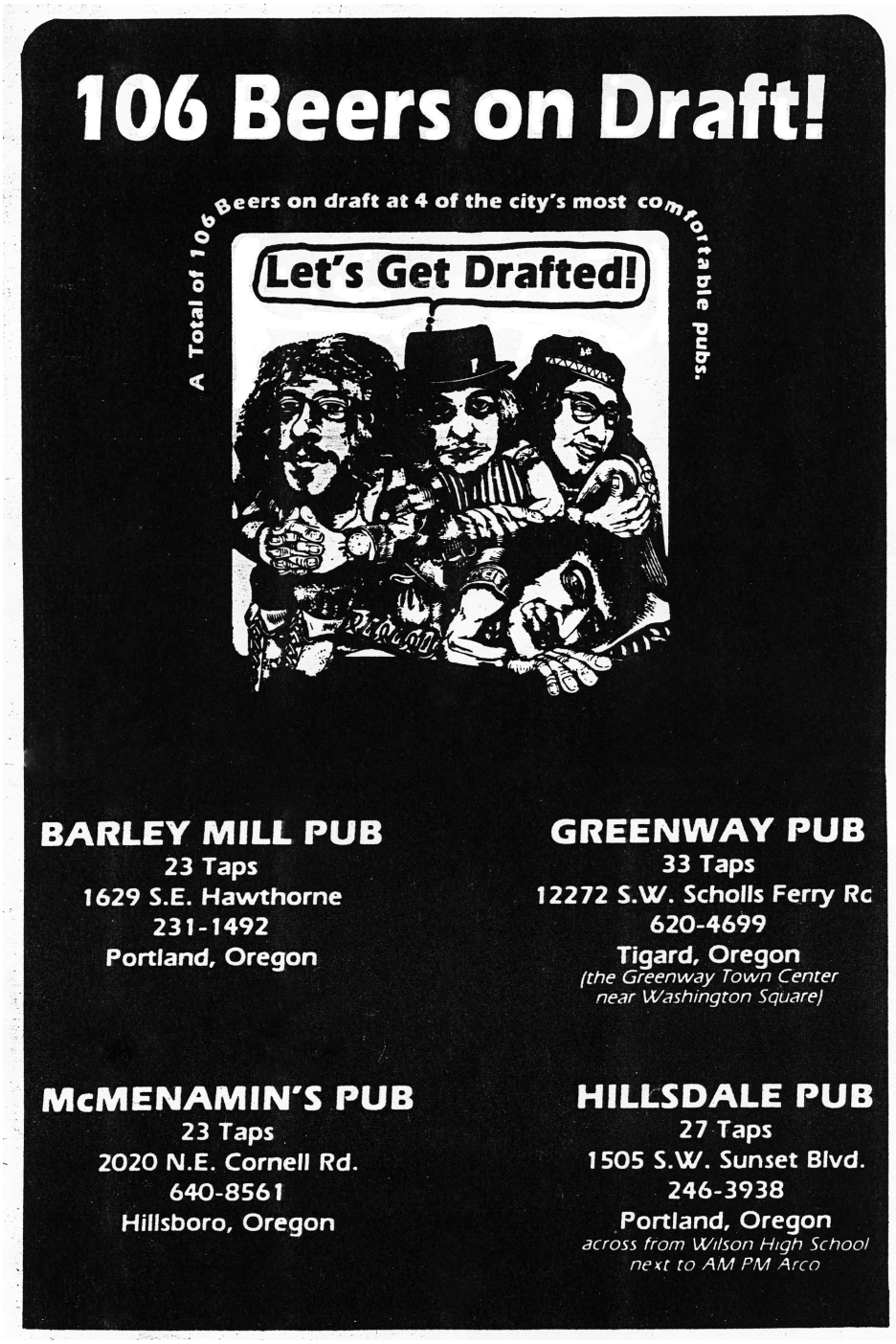

Figure 2. Advertisement featuring multiple draught beer taps at McMenamins pubs c. 1984. Courtesy McMenamins Collection, Special Collections and Archives Research Center, Oregon State University Libraries

The existence of multiple tap taverns was significant to the success of Portland's early craft brewers because it meant that they could find success in a draught-only business model. Whereas bar owners with only one or two tap handles might be hesitant to replace existing offerings with an unknown product, tavern owners with four or five tap handles might be more receptive to replacing an existing handle with a new craft beer. Moreover, by forgoing bottling their beer, early craft brewers could reduce the amount of labour and capital investment required to start a brewery (Bowman and Larrance 1985). All of the city's early craft breweries initially relied on draught-only business models. Even today many of Portland's craft breweries do not have their own bottling equipment, relying on draught-only business models, or on the mobile bottling and canning companies that have grown alongside the craft brewing industry (Interviews).

In addition to the strong draught beer culture in Portland, early craft breweries were able to gain customers more readily as a result of the city's historically strong sense of independence and provincialism. This unique cultural trait has fostered an acceptance and even celebration of locally-produced products (Dunlop 2013). Although the city's early craft brewers certainly had to work hard to create a market for craft beer, Portland consumers were at least open to trying a new product if it was produced in the city. As the former marketing manager for Bridgeport Brewing Company recounts:

> I remember going out, because I was… the sales guy for the beer, and I would go up to Seattle. [It is] my old stomping ground, and I knew the restaurants and bars up there from drinking [at them]. Every time I went up, I was greeted with open arms for the beer… They were open to the fact that this was regional… whereas, I think in Portland and in Oregon it was more parochial. It's 'is it from Portland?' 'Is it from anywhere in the state?' But if it was from Seattle? No one outright said it, but there wasn't that same love… There's that, 'is it from Portland [attitude]' And then it becomes a matter of pride. (Stuart Ramsay, personal interview, March 4, 2016).

Although elements of provincialism are evident throughout the Pacific Northwest through efforts to differentiate the region culturally and environmentally from the rest of the country (e.g. the Cascadia movement), this cultural trait is particularly pronounced in Portland (Abbott 1992; 2001; see also https://www.cascadianow.org/). Whereas Seattle, the other major city of the Pacific Northwest, developed an economy based on national and international connectivity throughout the post-war period, Portland retained its role as a regional economic centre for much

of the 20th century (Abbott 1992; Gibson and Abbott 2002). As a result, Portland developed a politics of "socioeconomic resentment and regional chauvinism" (Abbott 2001, p. 16). Most Portlanders are deeply satisfied with their city and its place in the world and are fearful of any threats or changes to that position, a fact that has been reinforced by waves of in-migrants looking to escape the corporate 'rat race' characteristic of other urban centres (Abbott 2001; Lansing 2003; see also Levy 2016; *In Other Words* Staff 2016). In the 1980s and 1990s, this unique culture fostered sense of civic pride around the city's blossoming craft beer scene. As a pioneer brewer remembers:

> I moved here in 1991…, [and] it was already starting to get into people's consciousness. I [met people] that were 21 years old and they were like, 'you have to go have a Widmer Hefeweizen. You have to come with us'. They already knew. Like, you have to go drink this beer if you like beer… It was just this civic pride. (Dave Fleming, personal interview, March 9, 2016).

The city's culture of provincialism also meant that the local newspaper, *The Oregonian*, covered the city's burgeoning craft beer scene, providing free publicity to start-up breweries. In fact, the city has had a weekly column covering the local beer scene since the beginning of the craft movement (Interviews). As beer writer Jeff Alworth explains, this allowed craft breweries to not only market their product at no cost, but also to become associated with the identity of the city:

> A bigger city like New York if you had a local brewery, the local paper isn't going to cover that because, who cares? They have a local everything. There are a million things going on. They have Broadway to cover. What do they care about your stinking little brewery? But in a small town where you are navel gazing that can be a big benefit. And little towns then start to get excited. You know, the word 'Beervana' was coined to identify Portland really early on, in the early 1990s… So, very early Portland was a booster of its beer as a way of both promoting its own beer and promoting its self. (personal interview, March 16, 2016).

Place-based reputational effects, such as these, serve as an important aspect of a city's local economy, becoming what Molotch (1996) terms its "geographic capital" (p. 230). Consumers value goods produced by specific makers in specific local milieu because of their associations with quality and authenticity (Luckman 2015; Zukin 2008). In the process, consumers reinforce particular associations between product and place, leading to the production of "monopoly rents" that adhere to places, their images, and the products associated with them, and that create entry

barriers for firms and products from competing locales (Molotch 1996, p. 230; see also Scott 2000; Leslie and Rantisi 2011). Portland's culture of provincialism played a significant role in creating and stabilizing such positive associations between Portland and craft brewing during the key formative period of industrial development.

The legacy and continued presence of the Blitz-Weinhard brewery, which, although struggling by the 1980s was still a large regional employer with strong political connections, also meant that Oregon, like other historic brewing states (e.g. Colorado, Missouri), had a relatively low per barrel excise tax on beer. The current rate of $2.60/barrel was set in 1977 and was (and still is) amongst the lowest in the country (Brewers Association 2018e; Distilled Spirits Council of the U.S. 2015). This, according to brewer Ben Edmunds, has been "probably the single most important thing" in terms of encouraging the growth of the craft brewing industry, as low tax rates enhance the ability of start-up breweries to survive, to become established, and to finance future growth (personal interview, March 23, 2016). Indeed, there is a strong correlation between states that have a robust craft brewing sector and historically favourable taxation structures and regulations regarding the production and sale of alcoholic beverages (Baginski and Bell 2011; Interviews).

Blitz-Weinhard, which would remain in operation until 1999, also provided a source of brewing skill and knowledge critical to the early success of Portland's craft brewing sector. While initially craft brewing was met with disdain and skepticism by Blitz-Weinhard's professional brewing staff, there was also a level of respect and fascination that eventually allowed relationships to form between the regional brewery and the city's fledgling craft breweries. Stories recounted by an ex-employee of Blitz-Weinhard and two of the city's pioneer craft brewers express the complexity of this initial relationship:

> The older guys [at Blitz-Weinhard], they kind of looked down their noses at craft brewers. And rightfully so at the beginning, because the consistency was really bad with craft brewers to begin with. They couldn't make the same batch of beer twice… So, there were a lot of people who thought it was just a flash in the pan thing... And craft brewers, they wore shorts to work. They had long hair. They had tattoos. They rode skateboards. They were not the guys that you would see typically involved in a place like Blitz (Jeff Edgerton, ex-Blitz-Weinhard employee, personal interview, March 4, 2016).

Another brewer reiterates the way in which Blitz-Weinhard dismissed the efforts of craft brewers:

> I don't think [Blitz-Weinhard felt threatened by us]. I remember going to a meeting there, the malt company was putting on a meeting and it was at Blitz. I had been working – we literally jumped into tanks and hand scrubbed them in those days – but I wanted to make this meeting. So, I literally jumped out of the tank – I was covered in yeast and crap – and went down to Blitz. They were all just laughing at me. They were like, 'god, look at you, what are you doing? How many barrels of beer did you make?' And I said, 'well, I think we made 14 barrels of beer' and they were just laughing, because to them 14 barrels of beer, that was nothing (Karl Ockert, Bridgeport Brewing's first brewmaster, personal interview, March 25, 2016).

On the other hand, there was also an interest on the part of larger producers (such as Blitz-Weinhard), in what craft brewers were producing:

> I think [Blitz-Weinhard's brewers] definitely appreciated what we were doing. On the brewing side, if you are a brewer, you have a lot in common whether you are at a big brewery or a small brewery… It wasn't a super tight relationship, but definitely… they would come by [to see what we were doing] (Rob Widmer, personal interview, March 27, 2016).

These initial connections slowly developed to include the sharing of technical expertise, which was crucial for early craft breweries struggling to achieve product quality and consistency (Interviews). As a large regional brewery, Blitz-Weinhard had sophisticated laboratory equipment that the city's craft brewers were unable to afford. Former employee Jeff Edgerton remembers several occasions where Blitz-Weinhard did analysis for craft breweries to help them identify and rectify quality control issues (personal interview, March 4, 2016). That expertise would further diffuse into the city's craft brewing industry as Blitz-Weinhard fell on increasingly difficult times throughout the 1980s and 1990s. Numerous ownership changes, several bankruptcies, and the eventual closure of the plant prompted a substantial degree of both voluntary and involuntary 'labour branching' into the city's growing craft brewing sector (MacKinnon 2017). This provided the sector with a significant amount of knowledge and experience throughout the late 1980s and 1990s, a time when most craft breweries in the U.S. were run by homebrewers with little or no professional training (Interviews).

Finally, regional industrial legacies also meant that adequate brewing equipment was somewhat easier to find in Portland than elsewhere in the country. This illustrates the importance of material objects in the evolution of the industry. Portland's early craft brewers were, for example, able to take advantage of manufacturers who had grown alongside the state's burgeoning wine industry. Although these manufacturers did not yet supply brewing systems per se, the fermentation processes in wine and beer making are similar enough to enable custom fabrication for beer brewing. Yet, while some early craft brewers did have custom tanks made by these suppliers, the costs associated with purchasing new tanks were often prohibitive to craft brewing's early entrepreneurs. Instead, Portland's early brewers built the majority of their brewhouses using repurposed equipment salvaged from other industries. As a pioneer craft brewer Rob Widmer explains:

> [We] started collecting used equipment at salvage yards… Our dad had retired some years before that… He was the kind of guy that could fix things without spending any money... [W]e would go and collect this salvage equipment and say, 'ok dad, here's what we need this to do,' and you know, wire, tape, hammer, nails and some scrap wood and he would make it do that. So, that was really important at that time because we certainly couldn't afford to have people fabricating things… [W]e had tanks from a nuclear power plant that wasn't licensed. We had a shrimp cooker. We had dairy tanks (personal interview, March 27, 2016).

Repurposed dairy tanks were particularly popular among the city's early craft brewers because dairy fermentation uses similar processes and equipment to beer brewing (Interviews). This degree of technological relatedness made conversions both possible and comparably straightforward. Moreover, structural changes in the dairy industry meant that many of the state's small dairies were going out of business in the 1970s and 1980s (Lakshminarayan et al. 1994). As a result, used dairy equipment was widely available and could be purchased at bargain rates. In this case, Oregon's history as a centre of dairy production provided a significant source of 'related variety,' facilitating the emergence of craft brewing (Frenken et al. 2007). By appropriating used dairy tanks for use in a new craft industry, Portland's early craft brewers also demonstrate that, in some instances, we may need to look beyond sectoral boundaries to fully understand the significance of material inheritances.

2.4.2 Industrial and institutional co-evolution in the rise of 'Beervana'

2.4.2.1 The shifting landscape of hops production in Oregon

While the proximity of the Willamette Valley hops growing region, and the hops research centre at OSU, served as a powerful material and institutional inheritance in the rise and early success of Portland's craft brewing sector, the region's hops industry has also experienced significant change as a result of the growth of craft brewing. Material factors have thus been central to the evolution of the sector, but have been altered as a result of their enrollment in the hybrid networks of craft brewing. The relations that make up these networks involve not only social actors, but also natural entities in the form of raw material inputs (see Callon 1986; Latour 1986; 1993). These raw materials are not simply static objects enlisted in the production process, but also malleable social actors that have the ability to shape the relations that make up the socio-natural networks of the sector and whose roles, identities, and actions are, in turn, formed and defined through the stabilization of such networks around a common cause (Latour 1986; Callon 1986; Murdoch 1997; Whatmore 1997). As the hybrid networks of craft brewing have become more established over the past decade as a result of the significant growth of the sector, there has been a corresponding shift in the agricultural production of hops (Brewers Association 2018a; 2018b). Although craft brewing still represents less than 15% of the American beer market (Brewers Association 2018b), it has had a substantial impact on the hops industry. Large craft breweries purchase close to the same volume of hops as large multinational brewing companies because their production processes use hops in much larger quantities (Interviews). Moreover, because craft brewers make different styles of beer than multinational brewing companies, they tend to prefer different hop varietals. As OSU fermentation science professor and expert in hops chemistry, Tom Shellhammer, notes, these characteristics have resulted in a significant shift in the varietal mix produced by hops farmers:

> [I]f you look seven years back, the U.S. hop industry was driven primarily by the production of high alpha hops. [These are] hops for bittering, hops for making hop extracts from for bittering purposes. [There were] some aroma varieties, but not a lot. And in seven years it's gone completely on its head, from 20% aroma to over 70% aroma. Those aroma varieties are the ones that the craft brewers [prefer] (personal interview, date).

The production of uniqueness, novelty, and variety are key components of craft brewing, and aroma hops are the main ingredient used to achieve those differences in the final product

(Interviews). Multinational brewing companies, on the other hand, favour the bittering qualities of alpha hops to make their signature pale lagers. While these companies do use aroma varieties, they use them in much smaller quantities than craft brewers. The mild, wet climate of the Willamette Valley is particularly conducive to the production of aroma varietals, while the hot, arid climate of central Washington's Yakima Valley has made that region synonymous with the production of alpha varietals (Herring 2017). Prior to the most recent period of growth in the craft brewing industry, the Willamette Valley was dominated by one aroma variety, appropriately named 'Willamette.' Hops broker Jim Solberg estimates that approximately 75% of the region's acreage was dedicated to the production of Willamette hops, and that nearly all of that acreage was routinely sold to brewing giant Anheuser-Busch as it was their preferred aroma hop (personal interview, February 5, 2016).

However, the significant growth of the craft brewing industry over the last decade, together with the purchase of Anheuser-Busch by multinational brewing giant InBev in 2008, has caused a significant shift towards the production of a greater variety of aroma hops in the Willamette Valley. InBev brought a new culture and relationship to the hops industry that affected growers who had relied heavily on the production of the Willamette varietal and its sale to Anheuser-Busch. As hops broker Matt Sage notes,

> The old family-run Anheuser-Busch was very security conscious… [T]hey always had extra in case they had a bad year. So, they had a huge amount of carryover. And then when InBev saw that they said, 'well, we won't buy hops for a while' (personal interview, February 5, 2016).

As a result, growers in the Willamette Valley lost a lot of business, and many were faced with the decision of whether to convert acreage to other products as was happening in the Yakima Valley (Interviews). This had a significant impact on the craft brewing sector, too, as hops broker Jim Solberg notes, up until that point the craft sector had largely depended on hops that "fell off the table" of Anheuser-Busch:

> Back in the day Anheuser-Busch was doing a lot of commercial trials on hops. It was always more than they needed, and the hops industry that was doing those trials would always take a bunch of those hops and package them and get them to the little brewers that were popping up. But it had changed dramatically because of the growth of the craft industry… [and because] the old Busch family-owned Anheuser-Busch got purchased by [InBev] that had a

> completely different direction. All these commercial trials pretty much stopped (personal interview, February 5, 2016).

As a result, hops became scarce right at the moment when craft brewing experienced a substantial period of growth. However, the growth of the craft sector and its penchant for the aroma varietals that favour the growing conditions of the Willamette Valley placed Oregon hops growers in a unique position to reinvent themselves as suppliers of the craft brewing industry. In 2009 Indie Hops, a hops brokerage catering specifically to the craft brewing sector, began working with Oregon hops farms to encourage the production of a wider variety of hops. At the same time, the company pledged $1 million to start an aroma hop breeding program at OSU and in conjunction with the university's long-standing USDA hops research station (Interviews; Herring 2017). The focus of the program is solely on the craft sector and on the production of unique and interesting flavor profiles, while also ensuring that the hops have the appropriate agronomy characteristics to facilitate their production (Interviews). The hops are bred in Oregon and are specifically designed for the local climate, which, as Indie Hops co-founder Jim Solberg notes, is the result of a conscious effort to strengthen connections between the Willamette Valley hops industry and the craft brewing sector (personal interview, February 5, 2016).

The breeding program, and the demand for the unique hops arising from it, has stimulated reinvestment in the Willamette Valley's hops growing industry:

> Because of the demand, the price of hops has gone up, and as a result,… hop growers are reinvesting. If you go to hop farms you will see picking machines that look like they are from the dust bowl era, and some of them are still… But, now we are starting to see some hop farms do multi-million dollar investments in creating what look like beautiful food manufacturing plants with all sorts of technology to measure quality (Tom Shellhammer, personal interview, February 1, 2016).

The proximity of the Willamette Valley to Portland has enabled the city's craft brewers to play a particularly active role in the evolution of the region's hops growing industry. Most brewers in Portland know professor Tom Shellhammer personally, and many have long-standing relationships with local hops growers (Interviews). There is a constant conversation between the city's craft brewers and the hops growing community, which has allowed brewers to develop a uniquely sophisticated knowledge of hops as a key brewing ingredient. Moreover, because craft brewers are interested in similar questions pertaining to the development and utilization of hops

as professor Shellhammer and the agricultural community, a unique "sense of experimentation" specific to the region has developed (Tom Shellhammer, personal interview, February 1, 2016). The city's craft brewers, for example, are often involved in hops research and brewing trials, and have preferential access to new experimental hops emerging from OSU's breeding program:

> We actually have relations with [Oregon] hop farmers and we are going out on their hop fields. A lot of times they will have an experimental strain that they will give to us and we… can brew something with it and evaluate it and give them feedback on what we think and help that [research and development] process move along. For example, this year we have this Idaho 7 hop, which has been around for a number of years as a number or letter and number combination, but this is the first year that it is commercially available as Idaho 7… [We] helped them nail down what the attributes of those hops were, so that's kind of cool. A lot of those growers were really appreciative and then have given us kind of cream of the crop kind of stuff as a thank you (Dave Kosanke, brewer, personal interview, date).

As Schamp (2011) notes, to be truly co-evolving there must be mechanisms of reciprocal reinforcement that operate between co-located industries. In the case of Portland's craft brewing sector, the long-standing history of hops growing in the Willamette Valley offered the city's early craft brewers easy access to a key raw material and provided a source of creative inspiration for the production of unique beer styles. In turn, the growth of the city's craft brewing industry along with the purchase of Anheuser-Busch by InBev – itself a product of shifts in the American beer market towards the flavour and variety of craft beer and away from standardized lagers – resulted in an increase in demand for the particular hops varietals that the Willamette Valley is uniquely positioned to grow. As a result, the hops growing region of the Willamette Valley has experienced a renewed period of investment and hops development, and a shift away from monoculture catering to large domestic producers towards the production of a wider variety of hops. Although the Willamette Valley supplies hops to craft brewers across the U.S. and elsewhere, Portland's craft brewing community has been a key player in the evolution of the hops growing industry in the region due to its proximate location and the ways in which co-location has facilitated ongoing interactions between the brewing and hops growing communities.

2.4.2.2 Creating new institutions in Portland's craft brewing sector

Craft brewing is defined by its independence, its small-size, and therefore limited mechanization, and its use of traditional ingredients and brewing methods. Craft brewers have been particularly concerned with reviving and reinterpreting traditional and historic beer styles, which often necessitate the revival and reinterpretation of historic materials and labour processes (Brewers Association 2018c; Interviews). Because the craft production of beer represents such a significant departure from conventional, mass production, modes of manufacture and the standardized lagers they produce, Portland's craft brewers have found benefit in working together to share skills and knowledge and to promote the growth of the sector. In doing so, they have created new institutions which serve to organize and sustain the sector, thereby substantiating arguments that suggest the importance of purposive action in new path creation and of the development new institutional structures in enabling the success of new industrial paths (see Mommaas 2004; Boschma and Frenken 2009; Mackinnon et al. 2009; Leslie and Rantisi 2011).

Although they initially viewed each other as potential competition, Portland's early craft brewers quickly realized that the presence of other craft breweries lent credibility to the nascent sector. As pioneer brewer Rob Widmer explains:

> [T]he Bridgeport brewery was right around the corner [from our original location], but we didn't know that. While we were building our brewery a guy up the street had a metal plating business and he had a forklift… [W]e promised him beer if he would help us move things on occasion. And one day he said, 'you know, I'm doing the exact same thing for some guys around the corner.' At first, we were just devastated and scared because we were like, 'there's not going to be room for two of us. How is this going to work?' …But, in retrospect it was a good thing because part of what helped with all of the pub owners was when they started hearing that it wasn't just us. It was like, 'well, maybe there is something here' (personal interview, March 27, 2016).

Realizing the potential for strength in numbers led Portland's early craft brewers to begin collaborating with each other in the mid-1980s, which simultaneously helped the breweries succeed and raised the status of the fledgling industry. Indeed, as early as 1993, beer writers noted "remarkably little competition" between Portland's craft breweries, and instead found ample evidence of joint efforts to raise awareness of the industry (Lupa 1993, p. 39). One of the

first sources of collaboration among Portland's brewers was the joint purchasing of grain. Securing raw materials was challenging for small breweries in the 1980s as, like equipment manufacturers, malting companies oriented their business towards large-scale brewing operations. The vast majority of malt was shipped loose in trucks and rail cars, with pricing structures geared towards bulk purchases. Thus, craft breweries had to find a way to effectively purchase and store loose grain. The solution that the Widmer brothers, Portland Brewing, and Bridgeport arrived at was to purchase malt collectively.

Collective ordering worked because, as Rob Widmer's story above highlights, these breweries were all originally located within several blocks of each other in Portland's Pearl District. Although the Pearl District is now a high-end mixed use neighbourhood, in the mid-1980s it was a semi-derelict industrial area, which offered a material landscape favourable to early craft breweries. In particular, the Pearl District offered a downtown location along with relatively affordable rents, industrial zoning, and the high ceilings, large floorplates, and flexible layouts necessary for beer production (Interviews; Weiler 2000; See Chapter 4 for a more detailed discussion of the spatial and locational requirements of craft breweries; see also Curran 2010). As in other creative milieus, the resulting density of craft production in the neighbourhood facilitated encounters among the city's pioneer craft brewers, which, in turn, allowed for the sharing of knowledge and resources, and, ultimately, the development of a collaborative 'brewing district' (see Rantisi and Leslie 2010; Hutton 2006; Stolarick and Florida 2006). This provides a further example of the role of the material environment in facilitating collaboration and creativity.

In addition to securing grain, the city's pioneer craft brewers worked together to promote legislative changes that would allow breweries to operate pubs. The so-called 'brewpub bill' was adopted by the Oregon state legislature in July 1985, making it one of the first pieces of brewpub legislation in the country. Up until that point, breweries in most states, including Oregon, could produce beer, but could not sell their product directly to consumers. These post-Prohibition laws were intended to limit alcohol consumption and to curb the ability of large breweries to control market access through ownership of taverns and saloons, a common situation in the pre-Prohibition era (Dunlop 2013). Oregon laws in the 1980s implemented a three-tier system, whereby brewers had to sell their beer to a distributor, who then sold it to a retailer. Breweries were able to sell directly to a retailer only if they did not own or have any interest in the retail establishment. However, selling to a distributor was generally not an option for early craft

brewers because, as Rob Widmer explains, “wholesalers at that time were like, ‘who are you guys? What’s up with that?’ They didn’t want us” (personal interview, March 27, 2016). So, craft brewers had to resort to convincing tavern and restaurant owners to sell their beer. Portland beer writer Jeff Alworth explains the difficulties early craft brewers experienced in this regard:

> There was that period of time when breweries had begun making beer, but they were trying to sell a product to people who didn’t know what it was. So, they were in this awkward situation of trying to educate their customers about the product... If you talk to the early pioneers it sounds like a real nightmare. They were going to pubs and [the conversation would] be like: ‘We’ve got beer.’ ‘We don’t need your beer.’ ‘Well, this is a different kind of beer.’ ‘What do you mean? I have regular and I have lite.’ And the customers? Same thing. Then, if they did manage to trick someone into buying a keg then the person behind the bar had to say, ‘oh yeah this is our new beer’ and they had to be the one to sell it. So, it was very difficult (personal interview, March 16, 2016; Figure 3).

Having a brewpub was, therefore, an important way for craft breweries to market their beer at a time when craft beer was an unknown product. Portland’s provincial culture meant that people were willing to try the brewpubs, which quickly became a destination for tourists and locals alike (Interviews; Dunlop 2013). Moreover, brewpubs provided an extra source of revenue for small breweries that, particularly in the beginning, were often close to losing money (Gauntt 1986).

Figure 3. Kurt and Rob Widmer load kegs for distribution in their old Datsun pick-up truck, c. 1990. They also used this pick-up for grain purchases at Great Western Malting. Courtesy MSS Dunlop, Special Collections and Archives Research Center, Oregon State University Libraries, Item Number: MSS Dunlop 036.

Pursuing a legislative change was championed by Dick and Nancy Ponzi from Bridgeport Brewing, who had experience working on similar legal changes pertaining to the wine industry (Interviews). The Oregon wine industry was flourishing by the 1980s and had successfully lobbied for legislative changes to allow for on-site tasting rooms that could also sell wine directly to customers, again illuminating the ways that the path dependent evolution of related industries in a region can be mutually reinforcing (Dunlop 2013; Interviews). The Ponzis, along with their staff at Bridgeport, teamed up with the Widmer brothers, Art Larrance and Fred Bowman of Portland Brewing, the McMenamin brothers and their father, who was an attorney, to lobby for these same rules to apply to beer. As pioneer brewery owner Brian McMenamin explains, it was an intimidating task to convince the state to make the change:

> We would meet at a pub and all jump in the same car and head down to Salem and do our due diligence running down the hallways trying to catch somebody and explain what we

> were trying to do. It was rather daunting. I mean we had no idea what we were doing, and most people had no idea what we were talking about (personal interview, March 8, 2016).

While they did eventually find political supporters who brought the proposed legal changes to the state legislature, they also faced strong opposition, mostly from beer distributors. The beer distributing lobby was very powerful in the state capitol, and almost succeeded in killing the proposed brewpub legislation. The brewpub bill was eventually passed by way of the 'gut and stuff' mechanism, whereby language from the bill was added to another, popular, bill that allowed bed and breakfast establishments to serve alcohol (Interviews). The beer distributing lobby was successful in including limits on self-distribution within the bill. Initially, only breweries producing under 10,000 barrels annually could operate a brewpub (SB 813 1985). However, as Oregon's craft brewing industry has grown and matured, it has been successful at raising these limits to accommodate larger craft producers.

Collaboration among the city's early craft brewers in promotion of the sector also led to the establishment of the Oregon Brewers Festival in 1988 and the Oregon Brewers Guild in 1992 (Interviews). Rather than functioning as a traditional craft guild focused on the development and conveyance of craft skill, the Oregon Brewers Guild serves as a key promotional arm of the industry, maintaining industry statistics and organizing several local beer festivals (Interviews). The Oregon Brewers Festival was originally conceived by Art Larrance of Portland Brewing Company as a way for the city's new craft brewers to showcase their new approach to beer making (Interviews; Dunlop 2013). It found immediate success the first year, with organizers hoping to attract five thousand attendees over the course of a weekend, but instead receiving close to fifteen thousand (Interviews). Today, it has grown significantly, now spanning four days and attracting anywhere from 75,000-85,000 people (Interviews). It is now advertised as the largest outdoor beer festival in the U.S. (Dunlop 2013). The festival continues to provide crucial market exposure to new craft breweries and has spawned a number of smaller festivals that now occur annually in Portland (e.g. the Holiday Ale Festival, the Fresh Hops Festival, Cheers to Belgian Beers, the Fruit Beer Festival, the Coffee Beer Invitational). These festivals have expanded opportunities to showcase local craft beer, and represent a significant tourist draw to the region (Interviews; Dunlop 2013). For Portland's craft breweries, local festivals provide an opportunity for collaboration, creativity and challenge, thus spurring processes of localized learning through the ongoing development of skill and knowledge in the city's craft brewing sector.

The proliferation of local festivals alongside the industry has also helped encourage the development of a uniquely sophisticated and dedicated local consumer base by showcasing the variety and creativity of local beers. As a result, the average consumer in Portland knows quite a bit about beer and is passionate and prideful of the city's contributions to craft beer (Interviews). As one brewer suggests, these characteristics help keep maintain the city's competitive advantage in craft brewing by encouraging the consumption of local beers over craft beers from elsewhere and by challenging the creativity of brewers

> You know what you don't see [in Portland]… are many of the big [craft beers] from outside of this area. You don't see Stone Brewing here very much… You don't see New Belgium here very much… [People in Portland] are very protective of their own… It's very much like 'this is ours, stay away from it'… [Portlanders] are also a very demanding crowd. It's a knowledgeable customer base. It pushes me [as a brewer]. I know I can never let up… I also like the fact that it is a challenge to keep them on their toes with new stuff… It's part of what drives you as a brewer (Mike Hunsaker, personal interview, March 24, 2016).

The city's early craft brewers also played a role in the development of the fermentation science program at OSU, which now acts as a key source of brewing knowledge and skill. Although the university has long been a key centre of hops research and development, its connections to brewing research and training are more recent. The school's fermentation science program began in 1996 as a result of a gift from Jim Bernau, the owner of Nor'Wester Brewery in Portland, who recognized that although the U.S. craft brewing industry was growing, there were not many sources of brewing education and research (Tom Shellhammer, personal interview, February 1, 2016). Indeed, most early craft brewers were homebrewers with no formal education or training. Today, however, brewers entering the industry today are typically have a degree or diploma in brewing science (Interviews; see Chapter 3). Aside from training brewers, the fermentation science program has connections to Portland's craft brewing industry through brewing research. Professor Tom Shellhammer at OSU does a significant amount of development work for industry clients, including local craft brewers. For example, Bridgeport Brewing Company tests all of its new products through OSU's pilot brewery as they do not have one of their own. As a result, Bridgeport stays in close contact with the fermentation science program and routinely hires students and graduates of the program (Interviews). The program also works closely with the hops breeding program at OSU, routinely providing chemistry support and conducting brewing trials on experimental hop varietals (Tom Shellhammer, personal interview, February 1, 2016).

The cooperative spirit of Portland's pioneer craft brewers has bred a strong culture of collaboration evident in the industry today. As an 'untraded interdependency', this culture of collaboration constitutes an important part of the learning environment for the city's craft breweries, and has helped maintain Portland's competitive advantage as a craft brewing centre (see Storper 1995; 1997; Mommaas 2004). Sharing knowledge and resources is an everyday occurrence in Portland's contemporary craft brewing sector. As long-time Portland brewer Dave Fleming explains, the city's brewers regularly trade hops, grain, and yeast:

> We all share stuff… I need a bag of grain, boom. My buddy came down and [lent] me two bags of grain because I couldn't [go out and get any] today… We all do this… [Another brewery] borrowed some hops from me the other day, and I borrowed some off of this [other brewer]. I had one the other day that was like seven deep. I'm like, 'wait a minute, who am I giving these hops back to?' It's very cool (personal interview, March 9, 2016).

Loaned ingredients often come with advice on how to use them. Importantly, this knowledge is offered freely and without restriction. There is seemingly no topic that is 'off-limits' among the city's brewers. For example, brewer Shane Watterson describes receiving technical advice from another brewery and, in the process, learning how they brew their signature beer:

> I've borrowed [another brewery's] yeast strain [for a Saison I was working on] … The first time I used it, I got bubble gum like crazy. It just gave this real bubble gum flavor. So, I call them up and ask, 'what's going on here?' and they're like, 'oh, yeah we actually [use this unique fermentation technique]'. This does not happen. This is not a normal [technique] that I would just figure out. There's just no way. I would be making bubble gum Saisons with that [yeast] for the rest of my life because I would never [think to do what they do]. But, having that kind of help from them – that's their main beer, that's their main strain, that's what they're doing – it's like, thank you! (personal interview, January 22, 2016).

Collaboration within Portland's craft brewing community is based on an ethos of reciprocity, one that gives rise to the exchange of tacit knowledge. Although brewers could demand payment for loaned ingredients, equipment, or technical expertise, they do not:

> We all share and it's not like you have to write me a cheque tomorrow. It's more like I'll get you back next time. It's goodwill (Dave Fleming, personal interview, March 9, 2016).

Brewers described the existence of a strong 'pay it forward mentality' which fuels collaboration, thereby allowing it to transcend differences in economic power among breweries and to become a persistent feature of the sector over the last 35 years (Interviews; see also Mathias et al. 2017). Many interviewees had received assistance from the city's brewing community at critical points in their career and described feeling proud to be able to help others out where they can. One such example is Widmer Brothers Brewing, which has grown to become the largest brewery in Portland. Like Blitz-Weinhard did for fledgling breweries (including Widmer) in the 1980s, Widmer now runs laboratory analyses for smaller craft breweries, who would otherwise not have access to such technology and expertise. As it was 35 years ago, this service is invaluable for small breweries striving for professional quality control in their products. As Widmer's Doug Rehberg explains, the company offers this service out of a sense of responsibility towards the industry and its development:

> [W]e are the big brothers in town [since Blitz-Weinhard closed], so it's kind of our job to give back… [W]e don't need to charge people for [laboratory analyses]. Usually what they do is when they drop off a sample, they drop off some beer for our brewers in the brewery, and the lab usually gets some too. Sure, we could charge for it, but it would not be necessary because, in the end, we are just making beer better in town. So, it's kind of like the rising tide should lift all boats (personal interview, March 3, 2016).

As in other craft clusters, collective identity and pride in one's craft underscores collaboration in Portland's craft brewing sector (see Piore and Sabel 1984). Echoing the findings of Mathias et al. (2017), this collective identity is oppositional in nature; Portland's craft brewers feel the need to defend their territory against other national beer brands by ensuring the overall quality of craft beer and the craft brewing experience in the city (Interviews). As brewer Mike Hunsaker puts it, "it's the rebel alliance versus the empire" (personal interview, March 24, 2016). This attitude leads breweries to cooperate beyond financial or other self-serving motivations, and it helps build a strong place-based identity for the cluster. The goal of collaboration here is not just to glean information and resources for the benefit of one's own brewery, but also to confer broader benefits on the entire sector. This collective identity has led to the development of a generalized sense of trust among city's craft brewers. Whereas cultural producers in other sectors must temper economic uncertainty by developing a personalized network of trust, simply being a craft brewer in Portland grants individual breweries access to a ready-made network with an

established institutional culture of information and resource exchange (see Banks et al. 2000). As a result, collaboration occurs even in the absence of established personal relationships:

> [W]hen we first opened, there were so many things going on, and a piece of equipment that we needed to test the carbonation in the beer, we just had overlooked and not gotten it in time. It's a fairly expensive, several thousand dollar piece of equipment. I just called up another brewery *who really didn't know me from anything*, but it was like, 'oh yeah, borrow ours. Bring it back whenever you are done.' (Interview).

Collaboration contributes to the development of the sector not only because it embeds breweries in a localized learning environment, providing an opportunity for troubleshooting technical issues, sharing ingredients and advice, but also because it offers a source of inspiration for the creative process. While craft brewing's labour processes are steeped in tradition, historic styles and practices are used as a foundation for creativity and innovation (see Brewers Association 2018c). Exposure to a wide range of practices is a crucial element of creative processes, as within each practice may lie the source of new creative inspiration (Grabher 2001). Portland's culture of collaboration supports such an exposure by enhancing opportunities for diverse encounters between brewers with different experience and expertise, and who brew different styles of beer. For example, one brewer describes developing an idea for an award-winning beer as a result of a comment made at a monthly tasting panel made up of local brewers:

> [Another brewer] was like, 'oh, I switched from wheat to this triticale,' which I'd never even heard of, but it's a rye and wheat hybrid grain. And so, I'm brewing this experimental beer for this anniversary party and thought I'll just see what that does. So, I got 100lbs of [triticale] and threw it in with our 2-row [malt] just to see what would happen. And it turns out that it enhances hop flavor in a wonderful way, and it gives a really nice mouth feel… I never would have even heard about the grain had I not talked to [this other brewer] (Shane Watterson, personal interview, January 22, 2016).

Although collaboration has been noted as a defining feature of the American craft brewing industry more broadly (see Mathias et al. 2017), interviewees felt that the nature and degree of collaboration within Portland's craft brewing community was unique to the region. Several interviewees had worked in breweries in other locations around the country, all of whom noted that the forms of collaboration that regularly occur in Portland did not happen where they had

previously worked (Interviews). Brewer Jacob Leonard shares the experience of a friend of his who brews in another state:

> My buddy, he's brewed for two breweries in [another state]. There are seven or eight breweries [in his city] and they never talk to each other. They never go in and have beers at each other's places… It's pretty nuts. [My friend] calls me and I'm like, 'why don't you call the guys who are over at [the brewery] two blocks away?' …It's just really interesting to be so isolated and to not be trying to create a community out of what you are doing. But, I think it's cultural there. It is competition there (personal interview, March 23, 2016).

Whereas Portland's culture of collaboration thrives on a shared identity and a generalized sense of trust, as brewery owner Josh Grgas notes, in other states personal connections are a prerequisite for cooperation:

> I know some people in breweries in [another state] and it's like you have to break down the wall and then… once they trust you, they are willing to divulge anything. But, you actually have to work for the trust. It's not immediately that there's a common ground (personal interview, March 11, 2016).

Interestingly, as brewer Shane Watterson's experience setting up a contract brewing arrangement with a brewery in Hood River, Oregon demonstrates, this is the case even elsewhere in Oregon:

> It's funny, I'm giving [this other brewery] all kinds of recipes, telling them how I want [them] to brew [our contract beers], giving them ingredients, giving them anything they possibly ask for, and I ask what yeast they use on their lager and the answer I get is that it's proprietary. It's a secret… So, even just an hour away from here in Hood River, [there is a] 'we don't tell our secrets' kind of thing (personal interview, January 22, 2016).

This unique culture of collaboration is a key example of an instituted convention that has co-evolved along with Portland's craft brewing industry. Whereas the city's early craft brewers were assisted by institutional legacies of past eras of industrial development, the city's current brewers are supported by an informal norm of deep collaboration. This convention represents a critical supportive institutional structure as it encourages creative experimentation and underpins the continuous development and refinement of craft skill. In a competitive landscape where place-specific cultural economic identities are a key source of authenticity and distinction, a

culture of collaboration serves as a key retention mechanism, drawing craft entrepreneurs to Portland, embedding craft skill in place, and, ultimately, strengthening the city's position as a centre of craft beer production and innovation (see Bathelt and Gluckler 2014; Schamp 2011; Molotch 1996; Scott 1996; 2000; Mommaas 2004; Warren and Gibson 2014).

2.5 Conclusion

Inspired by recent efforts to place the contemporary emergence of craft production in historical and geographical context, this chapter has sought to advance an evolutionary approach to studying craft industries. In doing so, I have followed the work of Chris Gibson and colleagues (Gibson 2016; Gibson and Warren 2018) in emphasizing an approach that is sensitive to place-specific legacies of labour process and their attendant materialities. Drawing on evolutionary concepts of path- and place-dependence (Martin and Sunley 2006; Martin 2010; MacKinnon et al. 2009; Leslie and Rantisi 2011), as well as co-evolution (Schamp 2011; Bathelt and Gluckler 2014), this chapter has built upon Gibson's framework in two ways. First, it has highlighted the need for an approach that also accounts for the local institutional environment, recognizing that institutions define the social, cultural, and legal conditions within a region and, therefore, play a significant role in shaping economic development trajectories (Cumbers et al. 2003; Martin 2000; Martin and Sunley 2006; MacKinnon et al. 2009; Hassink et al. 2014). The case of Portland's craft brewing sector substantiates the need for a critical, materialist, and institutionalist approach to studying the emergence and evolution of contemporary craft production. While the proximity of malt production and hops research and growing gave Portland's early craft brewers preferential access to key raw materials, place-specific institutional inheritances and legacies of brewing and related fermentation industries were the more critical factors in the early success of the city's craft brewing industry as they afforded early craft brewers with the knowledge and resources to develop skilled production techniques and created an environment in which those techniques could find commercial success. Historic regulatory and taxation structures were favourable to small-scale start-up breweries, as they promoted a strong draught beer market and culture of multi-tap taverns, while requiring relatively little in the form of excise tax. As a result, Portland's early craft brewers were able to minimize capital costs by relying on draught-only business models, which were further enhanced by the city's parochial culture.

Second, I have argued for an approach that recognizes the role of co-evolution as a key mechanism of path dependence. Enlisting the concept of co-evolution to examine the reciprocal evolution of the Willamette Valley's hops growing industry, I have argued for a need to recognize a broader role for the material basis of production in the evolution of contemporary craft economies. Craft skills and the raw materials of craft manufacturing matter not only as latent materialities that linger in the regional economy and that can become renewed sources of economic value, but also as co-evolving elements of contemporary craft economies that serve to further root craft sectors in particular places. The material and the social are co-constitutive, giving rise to a hybrid socio-natural network involved in the production of craft beer (see Callon 1986; Latour 1986; 1993; Murdoch 1997; Whatmore 1997).The local synergies between the hops industry and the craft brewing sector in the Portland region has fostered research and experimentation in the development of new hop varietals and has provided Portland's craft brewers with knowledge and access to raw materials unique to the industry. As a result, this co-evolutionary process has strengthened the region's reputation and association with innovative craft brewing. Such reputation effects have been further enhanced by the co-evolution of favourable institutional arrangements that have helped embed the sector in Portland. As the work of Mommaas (2004) and Leslie and Rantisi (2011) demonstrates, the emergence and ultimate success of new development paths often necessitates processes of ongoing institutionalization. In line with these scholars, this chapter has argued that co-evolution in the institutional landscape has been a critical factor to the success of Portland's craft brewing sector. The result of collaborative efforts on behalf of the city's pioneer brewers, the so-called 'brewpub bill' represents one of the first pieces of brewpub legislation in the U.S. and, as a result, was a significant, new supportive institution that facilitated the early success of Portland's craft brewers. Moreover, the regulations contained in the bill have evolved alongside the sector, thereby accommodating the growing size of craft production. These early instances of collaboration illustrate the role of purposive action in new path creation, and the importance of institutional co-evolution in providing new sectors with the institutions and infrastructure necessary to support ongoing processes of socialization, inspiration, experimentation, and knowledge exchange (see Mackinnon et al. 2009; Leslie and Rantisi 2011; Mommaas 2004). Today, collaboration forms an important part of the local institutional environment, facilitating the transmission and development of craft skill and spurring innovation and creativity in the sector, which, in turn, have created place-based reputation effects for Portland's craft beers.

The fate of collaboration as a cultural norm is, however, becoming increasingly precarious in an industry characterized by escalating competition, acquisitions by multinational brewing companies, and by the increasing scarcity of key natural resources. Development paths are not linear nor fixed, but can be altered, ruptured and even destroyed as a result of both exogenous and endogenous factors (Martin and Sunley 2006; Martin 2010). While the rise of fragmented consumer cultures, and the increasing importance of the symbolic and aesthetic qualities of products, has allowed room for the small-scale craft production of beer to occupy a competitive position in the economic landscape, the fate of this position is anything but fixed (Lash and Urry 1994; Scott 2000; Ross 2004; Featherstone 2007). Whereas only a handful of craft breweries existed in all of the U.S. in the 1980s, today they number in the thousands and many have grown to have national distribution (Brewers Association 2018a). However, as a key growth sector in an otherwise stagnant industry, craft brewing has caught the attention of multinational brewing companies, which are now in the business of purchasing and operating craft breweries. As a result, craft breweries opening today are competing not only with other local producers, but also with established national craft brands, and 'crafty' brands owned by multinational brewing companies. Although craft beer is valued for its authenticity and its ties to place, securing tap handles and shelf space is becoming a significant challenge for small craft breweries as multinational brewing companies can offer price points and incentives that they cannot. In addition, craft breweries are experiencing heightened competition for critical raw materials. The hops supply, in particular, has experienced significant volatility in the past decade, characterized by shortages and substantial increases in price. For emerging craft brewing sectors in other regions, this changing competitive landscape has made it difficult for collaboration to flourish to the degree it has in Portland, thereby hindering the ability of other cities to eclipse Portland as a centre of craft beer production and innovation. In Portland, it is threatening a key sectoral institution as craft breweries are beginning to rethink their business strategies, becoming more protective of their resources, knowledge, and expertise in order to stand out in a sea of high-quality craft beer.

Chapter 3
‘Glorified Janitors:’ Creativity, Cachet, and Everyday Experiences of Work in Portland, Oregon’s Craft Brewing Sector

3.1 Introduction

Craft modes of production have experienced a notable revival over the past few decades, altering the competitive landscape of industries from furniture to fashion to food processing (Leslie and Reimer 2006; Heying 2010; Donald 2009; Blundel and Smith 2013). In an era of cultural capitalism, craft production provides firms with a competitive advantage by conferring products with an aura of authenticity and quality due to their association with vintage modes of manufacture (Luckman 2013; Scott 2007). Craft production reputedly offers workers a meaningful alternative to unsatisfying work in other sectors, promising freedom, autonomy, the development of skill, and feelings of pride in one’s work (Sennett 2008; Krugh 2014; Carr and Gibson 2016; Ocejo 2010; Thurnell-Read 2014). It offers a chance to combine head and hand in production, requiring creativity, design, material knowledge, and haptic skill in equal measure. Yet, despite the high skill and potentially rewarding nature of the work, precarious working conditions are common. Craft workers are often no more capable of controlling their time and labour than workers in other sectors (Ross 2004).

Craft forms part of the broader creative economy, sharing many features in common with other forms of creative work, including an emphasis on aesthetic, cultural, and design features in production, as well as a common experience of uncertainty, instability, and economic vulnerability among workers (e.g. Banks 2010; Thomas et al. 2013; Warren and Gibson 2014; Luckman 2013; 2015; Warren 2014; McRobbie 2016). Craft products are valued for their bespoke and handmade qualities, which reflect the creativity of the maker and the perceived authenticity of their production (Luckman 2015). However, the production of craft products is also rooted in tasks of manual production (Carr and Gibson 2016). As a result, while contemporary craft sectors share many features of the creative industries, they also remain distinct through their continued connections to traditional forms of manufacturing. In this way, craft production blurs the distinction between creative and manufacturing industries (Gibson 2016). This chapter highlights the hybrid nature of craft production systems through a case study

of craft production in the American brewing industry. Drawing on the particular case of the craft brewing sector in Portland, Oregon, I argue that craft brewing is increasingly cast as a creative industry by emphasizing an additional connection between craft production and other creative industries based on the glamourization of work. This is a characteristic that has been particularly notable in the creative industries, with celebrity and glamour radiating through sectors from film to fashion to architecture, but that has received less attention in craft-based sectors (see McNeill 2009; Crewe 2010; Currid-Halkett and Scott 2013). Casting light on this newfound characterization of brewing work, I also consider how the quasi-celebrity status of Portland's craft brewers relates to their everyday lived experiences of work. In particular, I contrast the glamourous image of craft beer production with the precarious, and 'uncreative,' aspects of work in the craft brewing sector and draw attention to the particular effects that this image has had on working conditions in the sector. In doing so, I argue that the newfound cachet attached to craft brewers has exacerbated precarious working conditions in the sector, highlighting the implications that this cachet has had on issues of pay, job availability, and educational prerequisites.

The chapter begins by providing an overview of the literature connecting craft production to the creative industries and creative work, highlighting connections based on mode of production and the precarious nature of both types of work. I also highlight literature that notes the trend towards the glamourization of creative workers and question whether or not craft work might share this characteristic given that it can be interpreted as part creative industry and part manufacturing (see Gibson 2016; Carr and Gibson 2016). Drawing on the historical associations of craft with unalienated labour and on several contemporary studies of craft work, I suggest that craft production has indeed experienced a trend towards individual notoriety, but that the effects of that notoriety on individuals and their working conditions are still relatively unknown. I then provide a brief introduction to the case study and to my methodology. In the empirical sections of the paper, I discuss the cachet attached to craft brewers in Portland and how that cachet reflects the embodied experience of work among craft brewers. What emerges from these sections is a picture of an occupation that is at once desirable yet poorly paid, dangerous yet highly celebrated, and creative yet repetitive. It involves intellectual labour, but is also very physical. In the final section of the paper, I consider the implications that the glamourization of craft brewing work has had on wage levels, job availability, and educational requirements for entering the sector. Based on this analysis, I argue that while the recent glamourization of 'star'

craft brewers has made craft brewing appear to have more in common with other forms of creative work, it has not necessarily enhanced the prospects for creativity at work. Rather, the growing cachet of craft brewing has exacerbated precarious working conditions in the industry by creating an oversupply of potential workers, which has raised entry barriers, while simultaneously keeping wages low. In this way, rather than elevating the status of craft brewing, the glamour attached to this form of work has actually served to reinforce historic associations between brewing work and unskilled manual labour by encouraging a view that workers are easily replaceable and are willing to sacrifice pay for a chance to work in a 'cool' industry.

3.2 Craft production as creative manufacturing work: creativity, precariousness, and glamour

The creative industries produce outputs that are valued primarily for their aesthetic and symbolic qualities, as opposed to their utilitarian functions (Rantisi et al. 2006; Hesmondhalgh 2013; Luckman 2015). Because craft products are also laden with aesthetic and cultural meaning, existing studies have positioned craft production within the creative industries. These studies highlight how craft production operates on a similar register as other creative industries, emphasizing quality, authenticity, and originality in the final product (see Sennett 2008; Blundel and Smith 2013; Luckman 2015; Gibson 2016). Indeed, both craft and creative work rely heavily on immaterial labour, or labour that produces the images, ideas, and emotions embedded within the material object (Lazzarato 1996; Hardt and Negri 2000; Bratich 2010; Dawkins 2011; Gill and Pratt 2008; McRobbie 2010).

Because immaterial labour is at the forefront of cultural tastes and fashions, it involves not only the workers' heads and hands, but also their subjectivities and personalities (Lazzarato 1996). It is a form of affective labour that requires significant emotional investment. Gill and Pratt (2008) note that among the more consistent findings of studies of creative work is that most workers find it enjoyable and even desire the work they do. For example, in their study of female new media workers, Banks and Milestone (2011) find that creative workers derive pleasure and passion from their work based on the creativity and autonomy that such employment offers. Studies of craft workers echo these findings, describing the gratification and sense of purpose that they gain from their labour and from seeing the results of that labour enjoyed by consumers

(e.g. Hackney 2013; Blundel and Smith 2013; Thurnell-Read 2014; Warren 2016). Being a craft producer is an important part of personal identity construction, and many take great pride in their abilities (Paxson 2012; Ocejo 2012; Warren 2016).

Part of what attracts workers to craft and the creative industries more broadly is the chance to forgo a mainstream, corporate work life. Creative careers, including those in craft-based sectors, typically involve working for small firms in a laid-back, informal, and highly entrepreneurial environment (Neff et al. 2005; Warren and Gibson 2014). Many workers are also self-employed. Creative workers typically enjoy relatively high levels of autonomy at work, because, as Banks (2010) notes, a certain level of creative freedom is necessary in order to produce new, distinctive, and culturally current commodities (see also Hesmondhalgh 2013). Similarly, while some craft labourers may be constrained by artistic processes determined at higher levels, the recent growth of craft microenterprise means that many have significant opportunity for autonomy in their work (Banks 2010; Luckman 2015).

However, creative expression, autonomous working conditions, and job gratification come at a heavy cost for both craft and creative workers. Work in both sectors exhibits qualities of precariousness. Precarity "refers to all forms of insecure, contingent, flexible work – from illegalized, casualized and temporary employment, to homeworking, piecework and freelancing" (Gill and Pratt, p. 3; see also Waite 2009). Bulimic working patterns, long hours, the blurring of boundaries between work and leisure, poor pay, profound experiences of insecurity and anxiety, and a preponderance of temporary, part-time, and freelance modes of labour are all common within craft and creative industries (McRobbie 2002; Neff et al. 2005; Scott 2007; Gill and Pratt 2008; Hesmondhalgh and Baker 2008; Banks 2010; Dawkins 2011; Banks and Milestone 2011; Jakob 2013; Warren and Gibson 2014). Luckman (2015) notes that, like other creative sectors, financial risk-taking has become an entry requirement for work in craft production. Unpaid internships and low pay are standard in craft workshops, and the vast majority of independent craft workers are unable to make a full-time living from their labour (Dawkins 2011; Jakob 2013). Long hours and the fluid boundaries between work and leisure are a result of the fact that, for many craft producers, hobby and work are one and the same (Dawkins 2011; Luckman 2015). The infiltration of leisure time by work demands has been noted in the creative industries as well, where it is often attributed to the compulsory networking characteristic of these industries (McRobbie 2002; Neff et al. 2005).

Unions are noticeably absent from craft and creative industries, where tacit agreements tend to replace formal workplace negotiations (Banks and Hesmondhalgh 2009; Gibson 2016). Long working hours, small firm size, and, in many cases, the lack of a fixed workplace, hinder the development of a workplace politics in creative sectors (McRobbie 2002). Moreover, neoliberalized political structures and forms of power that have proliferated since the 1980s have deterred collective organizing by encouraging creative workers to see themselves as autonomous, self-marketing and self-responsible 'culturpreneurs' (Loacker 2013). While craft has a more substantial history of collective organizing through guilds and trade associations, as Banks (2010) notes, craft workers are increasingly discouraged from organizing (see also Thomas et al. 2013). Like creative workers, they are encouraged to see themselves as entrepreneurial subjects in charge of their own occupational fates, bringing craft further in line with the ideological frame of the creative industries (Luckman 2015).

Curiously, craft and creative workers tend to tolerate long hours, poor pay, and other precarious working conditions in order to have a chance at emotionally rewarding work (Ross 2008; Banks and Milestone 2011; Dawkins 2011; Jakob 2013). In their study of Milan's fashion industry, for example, Arvidsson et al. (2010) find that, despite being overworked and underpaid, fashion workers express high levels of job satisfaction. They argue that this sense of job satisfaction stems primarily from "the possibility to imagine oneself as belonging to a particular creative scene" (Arvidsson et al. 2010, p. 305). Creative work is valued not for its monetary rewards, but for its potential contributions to lifestyle and identity. Other studies have revealed a sense of expectation among craft and creative workers that they must accept these conditions in order to do something they are passionate about (Loacker 2013; Warren and Gibson 2014). As McRobbie (2002; 2016) argues, pleasure and passion at work serve to justify poor pay and reduce the potential for labour unions to form by warding off worker dissatisfaction and, therefore, organization.

Thus, what emerges from the existing literature on craft and creative work is a picture of labour that is precarious, but also desired by many for its artistic and emotional rewards. Although these rewards can be external as well as internal, to date, the literature on craft production has emphasized internal rewards such as job satisfaction, pride in one's work, and creative self-expression (e.g. Sennett 2008). Yet, creative skill can also be used as a means of distinction. Studies of work in the creative industries, for example, have found that creative workers are

increasingly caught up in the contemporary cult of the celebrity. Aided by media portrayals of creative work as the epitome of 'cool,' designers, artists, architects, chefs, and other creative professionals have quickly become recognized names (Neff et al. 2005; McRobbie 2002; 2016; McNeill 2009; Currid-Halkett and Scott 2013; Johnston and Baumann 2010; Johnston and Goodman 2015; Barnes 2017). Neff et al. (2005) note that creative workers often share this glamourized perception of their industry and profession, viewing their work as evocative of a hip lifestyle (see also Arvidsson et al. 2009).

Craft, however, is only part creative industry. It is also, in large part, manufacturing, a sector often positioned outside the realm of creativity (e.g. Florida 2002; see also Carr and Gibson 2016; Gibson 2016). As a result, contemporary craft workers have tended to remain uncelebrated and unseen relative to their creative industry counterparts (Banks 2010). Yet, despite its blue-collar associations, craft work has long been idealized as a model for humane labour (Banks 2010; Krugh 2014). Marx (1973), for example, differentiated between the specificity of skilled craft labour and the abstract labour of workers under the emerging industrial system (p. 296). Similarly, John Ruskin, William Morris, and other proponents of the Arts and Crafts movement of the late 19th century warned against the abstraction of labour caused by factory production systems, and instead proposed craft work as more socially just and enlightened model of work (Morris 1888; Ruskin 1849; Greenhalgh 2002; Buszek 2011; Banks 2010; Luckman 2012; Krugh 2014). For these theorists, craft work represented unalienated labour because it retains a concern with the substance of production. Whereas labour in industrial mass production systems is alienated because it requires workers to execute specific tasks in the production of products conceived by the capitalist class, craft labour is unalienated because it extends beyond the physical tasks of production to include the design and conception of products (Rantisi 2014). Although craft work may be as repetitive as other forms of manufacturing, its rhythm involves both physical and intellectual labour, and, as a result, craft production is argued to offer workers a sense of control over their labour (Sennett 2008).

An idealized vision of craft work has resurfaced in the contemporary period. Working in craft production has become fashionable, and is increasingly viewed as a desirable alternative to unrewarding and uncreative work in other sectors (see Ocejo 2010; 2012; 2014; Thurnell-Read 2014). At the same time, it appears that craft producers may be gaining celebrity status akin to their creative industry counterparts. Indeed, studies have begun to document the emergence of

high-profile craft producers in several sectors. Gibson (2016), for example, finds a "cult of the known manual artisan" in the craft cowboy boot industry in El Paso, Texas, exemplified by the use of individual craft producers in marketing and promotional material (p. 78). A similar practice is evident in the winemaking industry, where winemakers are frequently used to represent a wine's provenance (Smith Maguire 2013). Naming individual makers in this way helps construct products as authentic by giving them a face. These producers are then treated like artists who create unique products that bear the mark of their maker, and can therefore be juxtaposed against the faceless, and artless, sphere of mass production (see also Johnston and Baumann 2010). Celebrated craft producers can also serve as symbols of 'the good life,' both in terms of providing proof of the potential for pleasure and passion at work, and in terms of presenting and promoting lifestyles and consumption habits worthy of emulation (Johnston and Goodman 2015).

Like celebrity sports players, celebrated craft producers have communities of fans that follow them, even as they may move from one workshop to another. Yet, unlike sports stars, gaining status within a craft industry can be the result of several factors. In their study of surfboard makers in California, Hawaii, and Australia, for example, Warren and Gibson (2014) find that one reason cachet attaches to makers is quality workmanship. Because craft labour processes combine design and manufacture, craft products are intimately linked to particular makers, who can gain a reputation based on their artisanal skills (Sayce et al. 2007; Sennett 2008; Dawkins 2011; Bratich and Brush 2011; Hughes 2012). However, prestige can also be conferred upon craft workers for other reasons. Warren and Gibson (2014), for example, note that craft surfboard makers can also gain status by being associated with specific place-based subcultural scenes. Location matters for craft producers because consumers place value on goods with particular place associations (Molotch 1996). For example, the label 'Made in Italy' has value for consumers because, as Ross (2004) notes, it evokes "an unbroken tradition of making things by hand in artisanal workshops as old as the Renaissance" (p 210). By being associated with specific regional craft-based clusters, craft producers gain cultural capital, and therefore status, based on place associations assumed to denote creativity, authenticity, and quality (Scott 1996; 2000; Warren and Gibson 2014; Gibson 2016).

Yet, while craft producers may have gained notoriety, how this has affected the nature of craft work and its organization remain to be explored. A key question in this regard in whether and

how precarious working conditions are affected by the contemporary culture of cool surrounding craft industries. This is a significant question because research on work in the creative industries has suggested that the hype surrounding creative careers serves as a key attraction to this type of work, amplifying the fun, laid-back, and stylish side of the work while tacitly encouraging workers to accept the long hours, low pay, and high levels of insecurity that typically accompany it. Moreover, research on the winemaking industry, which has a long history of known makers as a result of its traditionally elite status (see Bourdieu 1984), suggests that glamourization may also heighten precariousness in various ways. Beverland and Luxton (2005), for example, note how celebrity winemakers travel widely in order to engage with customers, critics, and other winemakers in order to spur creativity and perform their passion. However, in doing so, they are also engaging in the promotion of their brand. As brand figureheads, they are required to mobilize their personality and individual biography in service of the brand, a process that requires particular forms of aesthetic labour. As Smith Maguire (2013) notes, in order to be an effective marketing tool, "a winemaker must not allow too great a gap in appearance and behavior between his or her "production" self (stained hands and bleary eyes) and "promotional" self," even though promotional materials typically rely on personal anecdotes and stories rather than detailed documentation of the production process (p. 382). This brings up questions regarding the role of glamourization in encouraging a romanticized image of craft work, as well as the diversity of labour performed by celebritized craft workers and the recognition, compensation, and time requirements that these forms of labour, which go above and beyond the material production of a product, entail. Building upon previous studies that suggest craft work remains highly precarious in sectors affected by the celebritization of craft producers (e.g. Warren and Gibson 2014), the remaining sections of this chapter seek to provide a deeper understanding of the relationship between the glamourization and the precarization of contemporary craft labour. First, however, I provide a brief introduction to the case study and methods.

3.3 Background and methods

The rise of the U.S. craft brewing sector represents a significant example of the contemporary resurgence of craft production. While at one time all brewers in the U.S. could have been categorized as craft producers, consolidation in the industry throughout the 20th century created

an industrial landscape dominated by a handful of large-scale mass production brewers (McGahan 1991). Yet, since the 1980s craft breweries have been growing in number, and gaining market share at the expense of multinational brewing companies (Brewers Association 2018a; 2018b; Watson and Gatza 2015; 2016). Craft brewing stands in contrast to the mass production techniques used by multinational brewing companies, emphasizing independence, tradition, small-scale production, and innovation (Brewers Association 2018c). Craft brewers are interested in reviving traditional brewing methods, as well as interpreting and adapting traditional recipes to push the boundaries of what the consuming public recognizes as beer. As a result, craft brewers rely on knowledge accumulated over time by the repeat crafting of beer, as well as creative experimentation, and acute sensory awareness.

This paper draws on qualitative research in craft breweries in Portland, Oregon conducted in 2015 and 2016. Portland holds a significant position as one of the key hubs of the American craft brewing sector. It was among the pioneers in the craft brewing community, with a small cluster of craft breweries opening and gaining success in the city in the early to mid-1980s (e.g. Widmer Brothers, McMenamins, Portland Brewing, and Bridgeport Brewing). Today, the metropolitan area is home to over 100 craft breweries, making it the city with the most breweries in the world (Oregon Brewers Guild 2017). As a result, Portland has emerged as a hot-bed of brewing talent, both training and attracting brewers from around the world.

In-depth interviews were conducted with 36 craft brewers and brewery owners (a total of 28 craft breweries). Interviewees were overwhelmingly male, white, and mostly between their mid-20s to mid-40s (although those interviewed also included a number of pioneers from the 1980s, now in their 50s and 60s, many of whom still work in the sector). This reflects the broader demographics of the craft brewing sector, which, despite an increasing number of female brewers and brewers of colour, is still dominated by white males (Herz 2016; Allingham and Britton 2016; Hurley 2017). Interviews were semi-structured, and ranged between one and two hours in length. They were conducted in the spaces of production, and as a result, they often led to brewery tours, which expanded upon explanations of production method, key pieces of equipment, technologies, and inputs. Tours also allowed for an opportunity to become more familiar with production techniques, workplace organization, and worker skills. Fifteen interviews were also conducted with other key informants, including former craft brewers as well as representatives

from training programs in the Portland area, who were able to shed further light on employment trends in the industry based on the experiences of their students.

3.4 Glamourous work? Cachet and the everyday experiences of being a craft brewer

Like other forms of craft work, craft brewing enlists both head and hand in the production process (see Sennett 2008). Craft brewers draw upon creativity, sensory awareness, and knowledge of raw materials to conceive new recipes, while also performing the manual labour tasks required to turn those recipes into beers that are packaged and sold at retail. The division of labour between these tasks varies based on the size of the craft brewery, however, in most cases the creative process is highly democratic, with recipe ideas and development available to and welcomed from all positions (Interviews; Figure 4). In small craft breweries (up to approximately 5000 barrels/year) brewing tasks might be performed by only one or two individuals, one of whom is likely also the owner of the brewery. These breweries typically do not brew every day, so work time is split between brewing and cellaring (cleaning tanks and other equipment, transferring beer between tanks, preparing beer for packaging). Larger craft breweries, on the other hand, typically separate brewing and cellaring tasks. Positions in these breweries include a head brewer, or brewmaster[7], as well as shift brewers and cellarmen responsible for day-to-day production activities (see Figure 4). Shifts are often of ten to twelve hours and rotate on a bi-weekly to monthly basis, whereas smaller breweries often work a morning and afternoon shift, usually comprised of just one person each. The largest craft breweries (approximately 50,000 to 6 million barrels/year) can have upwards of 80 or 90 brewing and cellaring staff, including additional management positions (e.g. head cellarman, brewing shift supervisor), and laboratory positions (usually no more than three) responsible for quality control (see Figure 4). However, with size typically comes automation, meaning that, while large craft breweries may employ more brewers and cellarmen than mid-sized breweries,

[7] In larger craft breweries where the brewery owner is also a brewer, head brewer and brewmaster are often two separate positions. The title of brewmaster is usually reserved for the owner, with the head brewer working directly under him or her.

there are not likely to be appreciably more brewers operating the brewery at any given time. These breweries only require additional staff to keep the brewery in production 24 hours a day, seven days per week. Regardless of brewery size, there is a hierarchy within and among brewing and cellaring positions, with brewing occupying a more prestigious (if not always better paid) position than cellaring. Aspiring craft brewers almost always enter the industry as a low-level cellarman and work their way up to one of the top brewing positions (Interviews). This stands in contrast to workers entering the industry in multinational brewing companies, where those with an education in brewing science would tend to enter into supervisory positions with production tasks reserved for unskilled workers (Interviews).

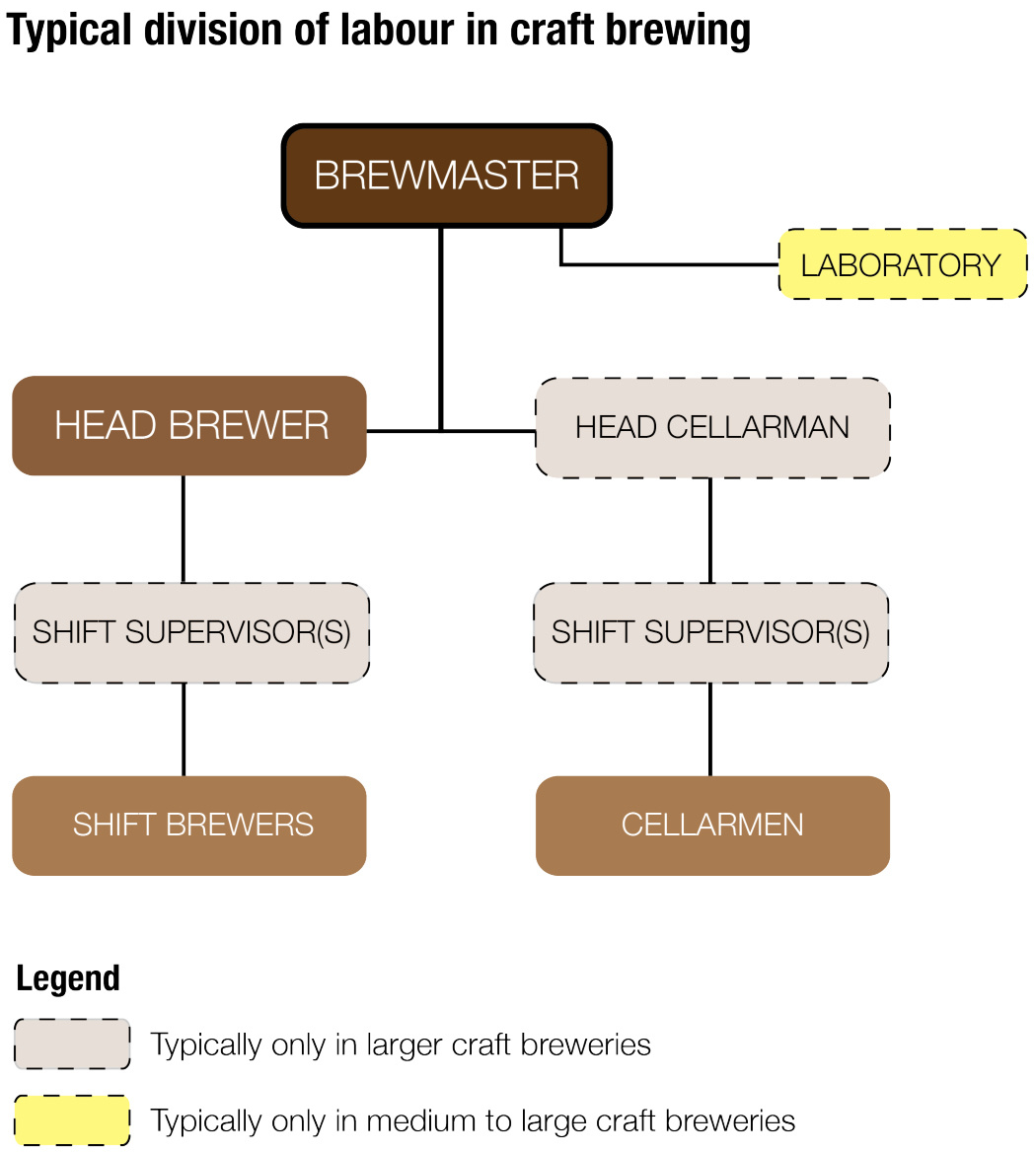

Figure 4. Typical division of labour in craft breweries[8,9]

[8] In smaller craft breweries (those that produce less than 5000 barrels/year) the tasks of these positions would be performed by only one or two individuals, one of whom would likely also be the owner of the brewery. Typical titles for a small craft brewery such as this would be brewmaster/owner and assistant brewer.

[9] In mid-sized craft breweries (5000-50,000 barrels/year) there often is not a distinction between brewing and cellaring as separate departments, with cellarmen working under the Head Brewer.

Along with food, the alcoholic beverage industry has become highly aestheticized, and now serves as an important arena for obtaining cultural capital, and thereby distinction (Lash and Urry 1994; Donald and Blay-Palmer 2006; Ocejo 2012; Johnston and Baumann 2010; Bourdieu 1984). While wine has historically enjoyed an elite status that has translated into notoriety for winemakers (see Bourdieu 1984), the elevated status of beer is a more recent phenomenon coinciding with the rise of the craft brewing industry since the 1980s (Elzinga 2011). As a result, in addition to the intrinsic rewards of being a craft producer, craft brewers in Portland now enjoy a degree of notoriety. Many interviewees noted the almost celebrity status that craft brewers hold. One brewmaster, for example, relayed this story:

> I was on an airplane flight and I was sitting next to this guy and he was a pilot. So, we got to chatting and he was telling me all about what it's like to be a pilot and how people really have this huge amount of respect for pilots. And I was like, 'man, that's really neat, being a pilot and being in charge of all of these people and stuff'. So, then he goes, so where are you going? I said, 'I'm going to a beer tasting competition in London' and so he goes, 'really? What do you do?' and I go, 'oh, I'm a brewmaster'. And he kind of looks at me and goes, 'you win' (personal interview, March 25, 2016).

Another interviewee, who had also worked in Cleveland, Ohio as a craft brewer, echoed this sentiment, but felt that the status of craft brewers in Portland was somewhat unique:

> It took me by surprise when I first got here that this job has status in this town. I had no clue until some articles recently got published with me in it and I had an [award] winning IPA and next thing you know people are eating dinner and going, 'hey, are you the brewer?' That would never happen in Cleveland, but here it does (Head brewer, personal interview, March 24, 2016).

Because Portland is a key hub of the U.S. craft brewing sector, and holds a unique position in the sector on an international scale, the city's craft brewers enjoy an elevated level of star status based on their association with a city known for its advanced craft beer scene.

Portland's craft brewers are glamourized through the proliferation of books (e.g. Hindy 2014; Dunlop 2013; Shomler 2015; Acitelli 2013), blogs (*New School Beer, Brewpublic; Beervana*), and other publications (*Brewing News*; *TAPS magazine*) dedicated to craft beer and the craft

brewing movement. These sources showcase the personalities behind the sector, constructing craft beer as an authentic and locally embedded product through the naming of specific producers (see Johnston and Baumann 2010; Smith Maguire 2013). As has been observed in the wine industry, these publications typically downplay the actual work of craft beer production, and of starting a craft brewery, preferring to document interesting anecdotes and personal stories, rather than the everyday labour of craft brewers (see Smith Maguire 2013). Here, for example, is an excerpt from Steven Shomler's *Portland Beer Stories: Behind the Scenes with the City's Craft Brewers* discussing the formation of Portland's Gigantic Brewery:

> As they began to talk about what kind of brewery they wanted to build, [one of the owners] asked [the other], "What do we want this brewery to be? What's the plan?" [The other owner] answered, "I don't want this to be some f***in' gigantic brewery." They both smiled knowing that they had just come up with the name for their brewery… [T]he reason they did not want to be "some f***in' gigantic brewery" had to do with neither of them wanting their brewery to become a large corporation with an unhealthy, life-killing culture… Gigantic is not like that at all. In fact, it is very fulfilling to [the owners] that they have a team of people working with them who want to be at Gigantic. My hat is off to their having stayed true to their hopes and dreams (Shomler 2015, p. 43-44).

Highlighting personal anecdotes like this contributes to the romanticism surrounding small-scale craft entrepreneurialism by downplaying the significant resources required to start a brewery, as well as the financial realities of being a craft entrepreneur (see Dawkins 2011; Jakob 2013). The owners are congratulated for "staying true to their hopes and dreams," suggesting that anyone might start their own craft brewery, and providing a model of 'the good life' whereby the pursuit of pleasure and passion at work outweighs considerations of remuneration or work/life balance (Shomler 2015, p. 44).

The images accompanying stories such as this serve to further obscure the realities of craft brewing work by showing brewers standing at ease in front of shiny production equipment (Figure 5) or contemplating the sensory aspects of a particular beer (Figure 6), rather than

paddling wort[10] or cleaning tanks. Through such representations, craft brewing becomes a romantic and creative endeavor, a source of purposeful and passionate labour, with few links to the actual manufacturing process. This idealized construction of craft brewing work is heightened by the numerous festivals, events, and competitions surrounding the craft brewing industry, which work to emphasize a fun work atmosphere replete with camaraderie, and friendly competition (Figure 7). Thus, what emerges is a glamourous conception of craft brewing, in which work is presented as largely about tasting beer, hanging out with friends, and expressing oneself through the creation of beer.

Figure 5. Brewers pose in front of the brewhouse at Breakside Brewery's new location in Northwest Portland. From "Breakside Slabtown brewers Jacob Leonard, Ben Edmunds and Will Jaquiss," by E. Johnson-Greenough, 2017a, http://www.newschoolbeer.com/wp-content/uploads/2017/12/Breakside-Slabtown-brewers.jpg. Copyright 2017 by The New School. Reprinted with permission.

[10] Wort is the initial product of beer brewing prior to fermentation. It is made by combining crushed grains with water to form a thick, porridge-like mixture known as the 'mash,' then separating the infused liquid from the grain husk material to produce a fermentable solution. Wort is then boiled with hops, cooled, then combined with yeast to begin the fermentation process. Fermentation then transforms the wort into beer (Kapral 2012).

Figure 6. A Portland brewmaster contemplates a beer. From “Alex Ganum contemplates a beer at Upright,” by E. Johnson-Greenough, 2017b, http://www.newschoolbeer.com/wp-content/uploads/2017/03/20160105_213114_1.jpg.

Figure 7. A Portland brewmaster/brewery owner toasts a member of the beer community at an event. From "Hopworks Urban Brewery founder Christian Ettinger toasts us with the new Wave Train lager garnished with a lime," by E. Johnson-Greenough, 2017c, http://www.newschoolbeer.com/wp-content/uploads/2017/12/Christian-Ettinger-cheers.jpg. Copyright 2012 by The New School. Reprinted with permission.

The image of craft brewing as a glamourous occupation is further enforced by a popular culture that celebrates the eccentricities of hipster / craft culture more broadly and its association with Portland in particular. This is exemplified in televisions shows like 'Portlandia' and in numerous newspaper and magazine articles dedicated to documenting 'trendy' cities and hotspots of hipster culture (e.g. Kyckelhahn 2013; Jordano 2014; Millington 2018). Consumers are also implicated in the glamourization of craft brewing through an increasing emphasis on uniqueness and authenticity in consumption. According to Zukin (2010), consumers increasingly desire authentic products as a reaction to the homogeneity and the lack of connection to processes of production that globalized mass production has brought about. Because authenticity and uniqueness are relationally defined against the unauthentic and the everyday, by privileging certain brewing practices consumers romanticize and politicize the craft production of beer as an act of resistance

and a means of transforming the prevailing labour and social conditions of global capitalism. What this process ignores, however, are the realities of craft brewing as an occupation that is physically demanding, highly precarious, and fraught with inequalities.

3.4.1 Masculinity and exclusion in craft brewing

As the above images convey, the 'star' craft brewer is constructed as a white male. This echoes historic constructions of craft knowledge as an expression of masculinity, which, as Cook (1996) notes, allowed paid craft practice to develop into a strongly male-dominated activity. Grounded in manual labour, craft work emphasizes physicality and rationality based on haptic skill and an intimate knowledge of materials (Sayce et al. 2007; Sennett 2008). Skill and knowledge were guarded closely by insular guild associations that also defined a moral code that Cook (1996, p. 21) identifies as a 'dignified manliness' that served to further justify the exclusion of women. Although these historic associations have been disrupted with the restructuring of many traditional craft industries over the past century (see Sayce et al. 2007; Rantisi 2014), in many ways the contemporary rise of craft production signals a return to traditional notions of masculinity. Craft remains highly gendered with women dominating contemporary craft sectors based on the commercialization of the domestic arts and crafts and men dominating craft practice in traditional manufacturing sectors (Hackney 2013; Luckman 2015; Warren and Gibson 2014; Warren 2016; Gibson 2016). As Warren (2016) shows in his study of the craft surfboard manufacturing industry, while work in these latter sectors is helping to produce alternative masculinities based on passion and love for the work, it is also often interlaced with workplace socialities that rely on displays of 'macho' masculinity and the sexualization of women.

The craft brewing sector is a key example of a male-dominated contemporary craft manufacturing sector (Herz 2016; Allingham and Britton 2016; Hurley 2017). While brewing was the work of women when the lack of refrigeration kept brewing in the home, the industrialization of brewing took it outside the (feminine) domestic sphere and into the (masculine) factory. As a result, labour in the U.S. brewing industry has traditionally been male-dominated (Flanigan 2014). Moreover, beer has historically been constructed as a masculine beverage through advertising and popular culture. Commercials for large domestic brands rely on traditionally masculine tropes, such as horses, and typically portray males as beer drinkers, while females are relegated to the role of service and sex appeal. The gendered nature of brewing has not changed substantially with the resurgence of craft production. While craft breweries

typically do not engage in television advertising due to their size and limited market, they do often draw upon sexualized imagery in the naming and labelling of their beers (Infante 2015). Moreover, while the number of female craft brewers and craft beer consumers is increasing, particularly in Portland where a recent poll found that 52.7% of craft beer drinkers were female, the vast majority of craft brewers remain white men (Watson 2018; Flanigan 2014; Interviews).

The continued dominance of the white male in beer production and consumption has meant that Portland's female brewers and brewers of colour have a harder time achieving the same glamourous status as their white, male counterparts, at least among the media and the consuming public. As one female brewer of colour explains:

> Brewers are kind of the rock stars here. Not me, I have to prove every time I walk in that I actually know what I'm talking about… [It's] because I'm a woman, for one, and because I'm a person of colour, for the other. What's funny is that that's never been the case in the community itself, among the brewers. It's always just kind of everybody else (Shift brewer, personal interview, February 3, 2016).

Historic associations between beer, manual labour, and masculinity mean that women are seen as an anomaly in the industry. As one female brewer describes, people are still often surprised when they encounter women in the brewery:

> This guy had come in to apply [for a job] and he's like, 'hey, I'd like to talk to a brewer.' I was like, 'yeah, hey, how can I help you?' And he was like, 'no, I'd like to talk to a *brewer*.' I was like, 'yeah, how can I help you?' He said he was here to apply for a job and wanted to talk to a brewer. And I said, 'I am a brewer'… And he was like, 'purple-haired brewer with a princess handshake, huh' (Shift brewer, personal interview, February 3, 2016; original emphasis).

As this brewer's experience shows, female brewers are still a curiosity even to those within the industry. Other female brewers told me that they often felt like they received attention and recognition within the industry simply because of their gender, rather than because of their skill or knowledge (Interviews). Indeed, when women are profiled in brewing magazines and other craft beer-oriented articles and publications, it is often in features with titles like 'The Women of

Craft Brewing' that infer that women are somehow out of place, an oddity within the industry (Interviews; e.g. Volk 2018; Bernstein 2014).

Associations between masculinity, beer consumption, and the manual labour of craft brewing also mean that women in the craft brewing sector frequently have their knowledge and skill doubted:

> I have had many people be a little bit surprised [by my knowledge], which is insulting to me… I do a lot of our off-premise events… and on occasion, if it is a weekend event, my boyfriend will come with me. I'll usually make him wear a t-shirt [with the brewery's logo on it] and walk around with me. Almost exclusively people will assume that he's the brewer or he's the representative and talk to him. I've had someone tell me I was a really good 'beer wife' for being decked out in brewery gear… I've definitely had people say … 'you don't even look like you drink beer.' (Brewery sales manager, personal interview, March 2, 2016).

As a pioneer female brewmaster relates, doubts around the knowledge and skill of female brewers is frequently tied to the physical stature of women in relation to the manual labour required in craft brewing:

> I went to brewing school because I knew no one would hire a 5'6" 120 pound woman. They are not going to do it. They will say, "you look too skinny and not strong enough. I'm going to go hire my nephew the body builder." I knew I would have to use my brain instead of my brawn, so therefore I went to brewing school… Now, lots of people go to brewing school to break into the industry, but back then you did not need it at all. I was one of the few people that went after that (personal interview, May 19, 2016).

In the early days of the sector most brewers entered the industry having only homebrewed. However, as the story recounted above shows, female brewers had to seek alternative ways of marketing themselves for brewing work. Although it is now common for all brewers to have some level of formal brewing education, female brewers are still often required to prove their knowledge and skill to an extent that male brewers are not (Interviews).

3.4.2 Manual labour, creativity, and the realities of craft brewing work

Although brewers displayed a clear passion for their work, the cachet attached to being a craft brewer made many of them uneasy. As a response, many sought to debunk the mythical status of craft brewing by emphasizing the less glamourous realities of the job. As one head brewer notes, brewing, like other forms of craft production, is similar to other manufacturing jobs:

> We had [our former head brewer] saying, 'you know, all these people want to see you guys, to meet the brewer, and say great job, whereas if you were putting tuna in that can nobody would give a shit'. And you're doing the same job for the most part. It's a manufacturing job (personal interview, January 22, 2016).

Being craft production, however, this is vintage-style manufacturing using small systems, or brewhouses, with relatively low levels of automation. For example, whereas in a large-scale brewhouse owned by a multinational brewing company everything is hard piped and beer is transferred to different tanks at the flick of a switch, in a craft brewery workers are manually moving beer by hooking hoses up to the appropriate tanks. Rather than monitoring an automated system, brewing in a craft setting involves dragging hoses around, lifting large bags of grain, lifting kegs, and opening and closing valves (Interviews). As a result, the work is highly physical. As one brewmaster describes:

> I have to use a paddle…to mash in[11] because there isn't a mash mixer. Then it's 10 minutes of paddling heavy, thick mash, then get a tank clean, then go out and grab 28 to 30 kegs out of the van, bring them inside and take them up and down the stairs, stack them, clean another tank, move beer. You're constantly moving… You're not just sitting there thinking, 'oh, how does this beer smell today? If I added 2 more pounds of hops this would be the perfect beer.' Those kinds of things happen on the side, like maybe five minutes every two days you have time to really hammer a beer apart (personal interview, January 20, 2016).

[11] 'Mashing in' refers to the start of the brewing process where crushed grains are mixed with water to form a porridge-like solution called the 'mash.' During this process sugars, proteins, and other materials are extracted from crushed grains (Buttrick 2012).

The physicality of the work introduces particular hazards, including heavy lifting, and working with chemicals, high temperatures, steam and pressure. These hazards reflect a continuing connection between craft brewing and more traditional forms of manufacturing work. As in other manufacturing sectors, injuries are common, if avoidable, and fatalities have been known to happen (Tepper 2012; Interviews). Similar to Warren's (2016) findings in the case of the craft surfboard industry, there is a 'macho' culture of masculinity within craft breweries that exacerbates the hazardous nature of the job by encouraging workers to 'just get the job done':

> [There is] pressure to just kind of do the work, and sometimes people don't do things like wear earplugs when the packaging line is running. I mean you can hear it in [the office]. The packaging line is loud. Or they don't wear safety glasses, and sometimes bottles explode. Or they don't wear face shields when they are pumping caustic out of a drum, things like that… That's a big thing that I think is a challenge in this industry because it is so kind of casual and cavalier sometimes where it's just like, 'yeah, I'm just making some beer'… We are working with dangerous things. You are not just a bunch of dudes making beers (Head brewer, personal interview, March 23, 2016).

As with other craft-based manufacturing sectors, the vast majority of craft breweries are non-unionized, and many do not offer health benefits (see Gibson 2016; Warren and Gibson 2014). As a result, dealing with injuries and health problems is largely left to the individual brewer, and agreements on pay and working conditions tend to be negotiated between brewery owners and employees, often on a case-by-case basis. This is in marked contrast to employment at the large multinational brewing companies, which, on the production floor, is almost always unionized and comes with health benefits and higher wages.

In contrast to the romantic aura of creativity surrounding craft brewing, brewers reported that much of their day-to-day work is fairly 'uncreative'. For all the celebrated qualities of making, the images of the craftsperson honing his or her skill, there is another side to work as a craft brewer that involves mundane things like spreadsheets and staff meetings, taking inventory and cleaning. As one head brewer explains, it is this less-glamorous side of being a craft brewer that many are unaware of when they enter the industry:

> Guys come in and they are going to be a keg washer. 'Ok, you want to be a brewer. Cool. You are going to stand in a room by yourself for eight hours and scrub kegs and clean them

> out'. It's not the thing that people imagine in their heads (personal interview, January 22, 2016).

The amount of cleaning required was a consistent theme among interviewees, to the extent that more than a few described brewing as a "glorified janitorial position" (Interviews). As one former brewer explains:

> Brewing is 95% or more cleaning. It's like being a janitor, but getting to have a beer that you made at the end of the day. People don't understand that. They think it's really glamourous. But, you're cleaning (personal interview, February 6, 2016).

While brewing may account for a substantial portion of the other 5%, according to one brewmaster/brewery owner, brewers have to be a 'jack-of-all-trades,' thus further cutting into creative time spent brewing and developing recipes:

> You have to be a plumber, an electrician, do all your own ordering, all your own material handling, do all the process of brewing. You are a contractor because you actually are ordering tanks, installing them, doing space layout (personal interview, February 3, 2016).

While there is a greater division of labour in larger craft breweries, one of the hallmarks of craft brewing is small-scale production (Brewers Association 2018c). The majority of the breweries that I visited as part of my research produced no more than 3000 barrels of beer per year. By way of comparison, the annual production cutoff to be considered a craft brewery by the Brewers Association, the national trade association of the U.S. craft brewing industry, is 6 million barrels (Brewers Association 2018c). The small-scale of production means that most craft breweries in Portland employ only a handful of brewers. A craft brewery producing between 1000 and 2000 barrels annually is likely to have no more than three employees, while those producing around 15,000 barrels annually are likely to only employ 15 to 20 brewers (Interviews). As a result, brewers typically have no choice but to perform multiple tasks in order to ensure the quality production of beer. By comparison, breweries operated by large multinational brewing companies typically employ a large workforce and have a strong division of labour, with union employees performing brewing and cellaring tasks and management overseeing the brewing process.

The small scale of craft brewing was, however, also seen as enhancing creative capacity. Small craft producers generally operate brewpubs as opposed to production facilities, which were seen by several interviewees as allowing greater opportunity for creative experimentation. As one head brewer explains:

> A one-off [beer] in the pub is a little bit like, well, if it's not successful then it's still going to go away pretty fast. We only have 20 barrels of it… Whereas if it's a brand that we are developing and we are going to buy 25 palettes of cans and there's 6,000 cans on a palette, there's a significant financial investment and it has to be pretty dialed and polished (personal interview, March 2, 2016).

Brewpubs tend to brew more one-off beers because they do not have the pressure of packaging and distributing the beer. They can simply offer it on draught through their pub. While not all brewpubs package their beer, for those that do, a pub-only offering allows brewers to test the market for a particular beer prior to making the financial commitment that packaging requires. Yet, the level of experimentation also depends on other factors, including the size and configuration of the brewhouse, the direction set by brewery owners, and the freedom given to brewing staff. While one interviewee, a brewer at a production facility producing around 15,000 barrels per year, reported being given "pretty much carte blanche" to develop and brew recipes (Interview), another, a head brewer at a brewpub with outside distribution, reports:

> Customers at this point at [our pub] are looking for hoppy stuff, so we tend to make hoppy beers, whether that be good or bad. People are like, 'oh, what do *you* want to make?' That sort of thing. Well, for the most part that has nothing to do with it. Maybe a couple times a year I will have an opportunity to brew what I feel like drinking, but it's not necessarily going to be what our customers want (personal interview, January 22, 2016, original emphasis).

Small-scale craft breweries are also able to take advantage of Oregon's self-distribution laws, which permit breweries making up to 7,500 barrels per year to self-distribute their products to other licensed establishments (Oregon Liquor Control Commission 2017). As one brewmaster/brewery owner explains, self-distribution further aids creativity by allowing brewers to carve out a niche and shape their own market:

> I believe [self-distribution affects my ability to be creative], 100%, because distributors will come back and be like we don't want to buy that beer from you. We only want this beer from you because this is what's making the most money and what's selling. Then, at that point in time, the brewer, they may not be cognizant of it, but they are letting the market dictate what they are making. I think really you should be dictating what the market is drinking from you… So, the ability to just go and sell stuff on your own allows you to really dictate your market in the beginning (personal interview, March 2, 2016).

Signing on with a distributor means that brewers have to brew what the distributor wants, which is largely what they are able to sell the most of. This means that breweries may be focusing the bulk of their production on one or two beers, rather than experimenting with a variety of different beers. One brewmaster/brewery owner working with a distributorship reports feeling ambivalent about the constraints faced by this relationship:

> We have to keep the lights on. If people want [our flagship IPA], then that's what we are going to brew. I'm ok with it, because something that I try to remind myself is that I'm not making beer for myself. I'm making it for other people and if that's what other people want, then that's what I will make for them. I'm just grateful that people want it. I wouldn't say it stifles my creativity. I mean do I get tired of brewing IPA non-stop? Sometimes. Do I wish that I had a little more time to try out some of the ideas that I have? Sometimes. But, that's just not where the brewery is (personal interview, January 22, 2016).

The above example highlights the everyday negotiations that many craft and creative workers engage in, trading off ideal work with what has to be done in order to make a living (Luckman 2012; 2015; Hughes 2012; Neff et al. 2005; McRobbie 2016). Thus, although much of the glamour attached to craft brewing is based on images of creative experimentation, autonomy, and the enchantment of making, craft brewers often find their creativity and autonomy constrained, and are faced with precarious, mundane, and often dangerous, working conditions on a daily basis.

3.5 Overappreciated and underpaid: the implications of craft brewing's 'cool' status

Not only does the cachet attached to craft brewing sit uneasily with the realities of work in the sector, it has also had significant implications for the competitiveness of positions, for wage levels, as well as for the educational prerequisites needed to land a job as a craft brewer. As a glamourized occupation, many people are attracted to work in craft brewing. A number of interviewees, for example, reported receiving a large volume of job applications for brewery work, many of them from people with professional backgrounds looking to switch careers. As one head brewer notes:

> It's hilarious the amount of applications I get and so many of them are from professionals – I get them from surgeons, from engineers, from every possible career – who are looking to switch careers because they hate their job. I'm like, 'you are a professional, and you are making money. You have maybe a family, and you are going to be taking the pay cut of a lifetime to take a job that is not as glamourous as you think' (personal interview, January 22, 2016).

Such applicants are searching for something different at work, and are often willing to exchange pay for the chance to feel fulfilled by their labour. As one interviewee who switched careers to craft brewing states:

> I really didn't want to do [my previous job] anymore and [craft brewing] was something that I was really passionate about and I was willing to take the pay hit in exchange for something that I was excited to go to work for (Shift brewer, personal interview, March 10, 2016).

This sentiment substantiates the argument of Arvidsson et al. (2009), who suggest that, in an era where individuals are encouraged to seek pleasure in the realm of work, the value of work is increasingly conceived in terms of identity and lifestyle, rather than in monetary terms. Having had a previous career was, in fact, common among interviewees, particularly those in their 30s and 40s. Brewers interviewed had had previous lives working in finance, medicine, insurance, and a host of other professional jobs (Interviews). This corroborates the findings of Thurnell-Read (2014) that many craft brewers in the UK had left professional careers to pursue work in the craft brewing industry. These white-collar professionals-turned-brewers were motivated to

turn their homebrewing hobby into a career because they felt unsatisfied with their previous work and were attracted to the idea of producing a tangible product by hand, of being in control of their time and labour value, and of working in a 'cool' and exciting industry. As one brewery owner who left a previous career in finance explains:

> I spent my days in a cubicle staring out the window thinking about all the different things I could be doing with my time… [With brewing] there's this sense of autonomy, like I have agency over everything I'm doing. This is my choice. I am creating a life-cycle and I'm creating a living product… When you are behind the computer, you are so disconnected from the end product. And there might not even be a product that you are working towards. But [beer] is a discernable product that I can consume and use and share with people. (personal interview, March 11, 2016).

Such choices reflect the long-held connection between craft production and unalienated labour (Marx 1973; Morris 1888; Ruskin 1849; Luckman 2012; Krugh 2014), and highlight the romanticism attached to craft production. Craft is often heralded as a beacon of hope, having the ability to resist and transform the prevailing labour and social conditions of global capitalism, and offering a way of practicing skilled labour and of living a free and pleasurable life (Sennett 2008; Krugh 2014). The prospective emotional rewards of craft labour – job satisfaction, pride in one's work, self-expression – along with the physical and sensual components of the work – notably, a connection to an end product through the physical act of making – represent a significant draw for workers and may indeed form the basis for meaningful, engaged labour (Sennett 2008; Ocejo 2010; Banks 2010; Dawkins 2011).

Yet, the eagerness to find pleasure at work has meant that brewing positions are intensely competitive, particularly in Portland as a recognized craft brewing hub:

> Unfortunately, I would say that Portland for brewers is kind of like Hollywood for actors. Everybody that graduates from any program or has ever wanted to be a brewer comes out to Portland thinking that they are going to walk into a position brewing (Head brewer, personal interview, January 22, 2016).

This competitiveness has had significant implications for workers looking to get into the industry, as it has allowed owners to be more discriminating in their hiring practices. One way

they have done this is by requiring significant levels of education and experience, even for entry-level positions. For those starting their careers in the 1980s and 1990s, homebrewing experience tended to be enough to land a job in the industry. Today it is more common that brewers have some degree of formal training. For some, that may simply be on-the-job training in a brewery, generally through an unpaid, informal arrangement with the brewmaster or brewery owner. In many instances, these arrangements develop out of pre-existing relationships. One interviewee, for example, explained how he was able to transition from bartending to brewing at the same brewpub:

> I was a bartender, actually, for this this company for a long time… I was thinking about going to school at Oregon State for their fermentation science program and [the brewery] had an internship open up, so I thought I should try that out before I am $100,000 in debt because maybe I would hate it. But, it ended up going really awesome, so they hired me on, and I've been doing it professionally for about four years now (Shift brewer, personal interview, March 10, 2016).

Yet, another brewer who made the transition from bartending to brewing felt that this path was becoming more difficult as the jobs become more competitive in the industry and owners look to hire brewers with pre-existing education and experience rather than someone they would have to train (Interview). As a result, having either a bachelor's degree in fermentation science, or a trade certificate from a master brewer's program like the Siebel Institute or the American Brewers Guild has become common among the younger generation of brewers. Most brewers who choose the latter route already have an undergraduate degree in another field and so are looking for a quicker route to achieve their career goals. However, the 4-year undergraduate fermentation science program at Oregon State University has also seen an increase in post-baccalaureate students. As a professor in the program states:

> We have a fair number of students who are post-baccalaureate. So, they are coming back because they were tired of being a mechanical engineer, or chemical engineer, or a variety of different backgrounds… And they come in their mid-20s to in some cases early 30s. We have some in their 40s who are doing this change up (personal interview, February 1, 2016).

The competitiveness of brewing positions has also meant that brewery owners are able to keep wages low. Wages in the craft brewing industry are notoriously poor. In many craft brewpubs, it

is common for bartenders to earn more than the brewers (Interviews). Top brewing positions in a brewpub or a small production brewery typically earn around $40-60,000 per year, while mid-level positions range between $20,000-40,000. Entry-level positions, which are typically support positions in the cellar (cleaning tanks and kegs, transferring beer), start around $12-13/hour (Interviews). Thus, as one head brewer describes, in a city like Portland where rents have increased substantially over the past decade: "you're making enough to pay your rent and go out maybe a couple of times. You're not saving money" (personal interview, January 22, 2016).

Mid-level and top positions tend to be salaried, rather than hourly, which, as one interviewee explains, can mean that these positions actually pay less per hour because of the typically small size of craft breweries and the long hours that are often required:

> The problem is that once they get you to salary, sometimes you just can't leave. If you are stuck and you are the only person who is brewing, and you run into a problem, you don't really have a choice but to stay until it's solved. You might be working 5 days at 14 hour days, because work still has to get done (Shift brewer, personal interview, February 3, 2016).

This is compounded by the promotional labour that craft brewers are increasingly required to perform with the proliferation of craft beer festivals and events. As with wine, craft brewers have become the face of the brand and their presence at beer-oriented events is an important signifier of the authenticity of the product. In this way, craft beer production transcends the brewery, extending into the social spaces of festivals and competitions, such that it is often difficult to distinguish work time from leisure time (see Lazzarato 1996; Hardt and Negri 2000). Moreover, because craft products bear the mark of their maker, their value is tied to the establishment of a relationship between producers and consumers. As a result, craft beer production enlists the subjectivity of brewers, who are not only required to attend various events but to be available for conversation as a way of representing and communicating the value of craft beer (see also Ocejo 2010). As in other creative sectors, brewers often feel pressure to attend festivals and events in order to 'keep up' appearances in the industry (see McRobbie 2002; 2016; Neff et al. 2005; Gill and Pratt 2008):

> There are too many beer people out there who want to talk about stuff and who will put things up on social media. Everybody is chasing the next big thing. If you aren't out there pushing, it's not going to happen [for you]… You have to go to [events]. And it's hard. The

> younger you are, the better, because you are more willing to be out and about. If you are older, married with kids, that kind of thing, you don't want to be out and about. So, next time you are out socially [at a craft beer event] and you are noticing things, look at who is there. The head brewer might not be there. The [shift brewers] are probably there, but the [head] brewer has gone home. (Shift brewer, personal interview, February 3, 2016).

As this brewer's experience shows, the 'club culture sociality' of the creative industries has filtered into craft manufacturing sectors and is disproportionately affecting entry level employees, older brewers, and female brewers, who tend to still perform the bulk of domestic and caregiving labour, thereby contributing to the male-dominated nature of the sector (McRobbie 2002; 2010; 2016).

Craft brewing is a relatively young sector, having emerged only in the 1980s. Pioneer craft brewers were almost exclusively hobbyists who were able to successfully commercialize a passion for homebrewing. The amateur roots of the industry have encouraged a view of craft brewing as unskilled labour, as something that anyone could do (Interviews). Equating craft production with amateurism has a long history, and has been amplified by the typically 'micro' nature of contemporary craft enterprise. As Luckman (2015) argues, contemporary craft production exists on a fluid spectrum of professional to amateur practice, with most producers falling somewhere in the grey area between the two. As one interviewee notes, the fact that people are willing to sacrifice pay in order to do the job only exacerbates this association:

> [There is this] idea that anyone can walk in and do the job, which I think has fed this low pay side of the industry. It's like, well this job is so glamorous seeming that I get people willing to come and do it for free. Why would I pay you more?... [But] we've grown to this point not on the back of unskilled labour. We have trained people and gotten people skilled, and now if we lose someone, we are losing not just a random cog. It's skilled labour (Head brewer, personal interview, March 23, 2016).

In this way, the cachet around craft brewing work has heightened historical associations between manufacturing and unskilled, uncreative work and of equating craft production with amateurism by encouraging brewery owners to see workers as interchangeable, rather than possessing unique skills valuable to the success of the business. By attracting large numbers of people in search of a chance to work in a 'cool' industry that offers the potential for pleasure and passion at work,

owners have been able to keep wages low and to rely on unpaid labour for entry level work. What this association ignores, however, is the highly skilled, if often 'uncreative' and 'janitorial,' nature of craft brewing work, as well as the fact that many brewers have invested a significant amount of time and resources in acquiring knowledge and honing particular skillsets. As in other craft sectors, professional craft brewers looking for recognition and for adequate compensation will have to work hard to have their skill recognized (see Hughes 2012). While unions remain absent in the context of Portland's craft brewing sector, unionization was reported as a 'low-level' topic of conversation in the community (Interviews). At the same time, collective organizations, such as the Master Brewers Association of America, are beginning to step in to promote the professionalization of the industry by setting standards for educational programs, and by offering seminars related to health and safety, and other aspects of professional practice (Interviews). As a result, there may yet be a future where the perception of craft brewing is grounded less in a romanticized ideal of creativity and glamour at work and more in the recognition of the skilled practices and specialized knowledge of craft brewers.

3.6 Conclusion

The growth of craft production in the contemporary period has led researchers to explore the theoretical connections between artisanal making and other types of creative work. As a result, there is a growing literature emphasizing linkages between craft production and the creative industries based on a common experience of precarious working conditions, as well as a shared mode of aestheticized and culturally-valued production. Yet, as I have emphasized in this paper, and as other researchers have begun to find in other craft-based sectors, there is an additional, emerging, connection between craft production and the creative industries based on the glamourization of craft and creative work (see Gibson 2016; Warren and Gibson 2014; Neff et al. 2005). As my case study findings show, craft brewers in Portland, Oregon enjoy a quasi-celebrity status based on their profession, and their connection to a city renowned for its craft beer culture.

However, as I have argued above, rather than reflecting the nature of work in the sector, the cachet attached to craft brewing is largely a result of hype surrounding the industry that has amplified the long-standing romanticism associated with craft production. While craft has a

history of being viewed as grounding workers in a tangible reality, connecting them to the fruits of their labour, and offering a means of creative expression, the everyday lived experiences of craft brewers are often at odds with this ideal. Although most interviewees expressed genuine passion for their work, they were also quick to highlight the less glamourous aspects of craft brewing. Craft brewing is a highly physical, and often dangerous job, requiring long hours for relatively little compensation. Although celebrated for their creativity, brewers reported facing a number of constraints to creative freedom, based on brewery size, business model, and ownership decisions.

Moreover, the everyday precarious experiences of work in the craft brewing sector have been exacerbated by the glamour and romance associated with craft brewing. As I have argued above, the cachet attached to being a craft brewer has attracted numerous people to the sector, thereby heightening job competition and helping to keep wages low. Positions are now highly competitive, as craft breweries have become inundated with job applications from individuals looking to switch careers, attracted by the opportunity to engage in meaningful, exciting labour. This has put a premium on prior work experience and education. Aspiring craft brewers seek opportunities to gain experience wherever they can, including through informal and unpaid internship-style arrangements with brewery owners. In the process, the glamourization of craft brewing work has exacerbated historic association of brewing with unskilled, ‘blue collar’ work, and of craft production with amateurism, by encouraging a view of workers as easily substitutable. As a result, the newfound cachet attached to craft brewing has helped keep wages low in the industry by downplaying the skilled nature of craft brewing work, and by signaling to owners that people are willing to sacrifice pay in order to work in a ‘cool’ industry.

In this regard, this chapter has highlighted the important consequences that glamourization can have on an industry, and has emphasized the relationship between precarious working conditions and the celebrated nature of craft and creative careers. Yet, it is clear that the exact nature of this relationship may differ from industry to industry, and also from worker to worker. As Hughes (2012) notes, much of the academic research on craft labour has emphasized an image of the craft worker as a heroic, masculine figure (see also Sennett 2008). This image is easily perpetuated in a sector like craft brewing which is dominated by men. Gender, race, and ethnicity, however, shape individual experiences of work life and have emerged as important sources of division among creative and craft workers (McRobbie 2010; Hughes 2012). In the

case of the craft brewing sector, female interviewees and brewers of colour noted a level of discrimination from the media and the consuming public based on the assumption that, as women and individuals of colour, they did not belong in the industry. Women, in particular, are viewed as not being knowledgeable about beer, and as not having the right stature for the physicality of the work. As a result, although most female craft brewers reported feeling welcomed and embraced by their male counterparts, in most cases they have not shared their degree of notoriety. Thus, while the glamourization attached to craft brewing has had implications for the nature of working conditions in the industry, the effects they have had on workers based on their gender, race, and ethnicity, and the strategies these workers use to overcome discrimination, remain important avenues for future research.

Chapter 4
Placing Production in Cultural-Economic Policy: Craft Brewing and Urban Policy in Portland's Central Eastside Industrial District

4.1 Introduction

This paper builds upon and responds to recent calls for research concerned with the reindustrialization of the cultural economy and its ramifications for urban policy (see Pratt 2008; O'Connor and Gu 2014; Grodach et al. 2017). For several decades now, dominant policy discourses have divorced cultural production from manufacturing, emphasizing knowledge-based and creative industries as the key to economic prosperity, while casting urban manufacturing as a sector in decline and as a barrier to economic development (Indergaard 2009; Curran 2004; 2007; 2010; Curran and Hanson 2005). As a result, urban governments in many cities have actively encouraged the conversion of inner-city industrial land to uses deemed more creative and productive in the context of a post-industrial urban landscape (Hutton 2004; Leigh and Hoelzel 2012; Catungal et al. 2009; Grodach et al. 2017; Sprague and Rantisi 2018). What this 'replacement narrative' (O'Connor and Gu 2014) misses, however, are the ways in which the manufacturing sector both can and does persist in urban centres (Clark 2014).

Indeed, in advanced industrial economies manufacturing is increasingly defined by small and medium-sized enterprises, many of which have connections to the cultural economy (Mistry and Byron 2011; Curran 2010; Clark 2014; Grodach et al. 2017). Craft-based manufacturing, for example, has experienced a significant revival in recent decades. Challenging narratives that see the cultural economy as a replacement for industrial manufacturing, these activities combine cultural production with small-scale manufacturing, drawing upon creative experimentation, materially-specific knowledge, and haptic skills to produce products differentiated on the basis of their aesthetic and semiotic qualities (Carr and Gibson 2016; Sennett 2008; Blundel and Smith 2013; Gibson 2016). As a result, craft-based manufacturing is locally embedded in ways that present a disincentive to offshoring (Williams 2011; Warren and Gibson 2014; see also Scott 2000). Yet, while craft-based manufacturing has become a distinguishable feature of the urban economic landscape, cultural-economic policy has largely ignored the needs of these producers (Hughes 2012; Grodach et al. 2017).

Responding to a recent call by Grodach et al. (2017) for policy-focused research agendas that build knowledge of the spatial and locational requirements of creative industries and small-scale manufacturers, this chapter is concerned with bringing the needs of craft-based manufacturers to the attention of urban policy-makers by uncovering the unique land use issues that exist at the intersection of cultural production and manufacturing. In particular, I highlight the spatial and locational requirements of the craft brewing sector and the ways in which these requirements intersect with land use policy in Portland, Oregon's Central Eastside Industrial District (CEID). Craft beer is produced by small manufacturers and is infused with notions of quality, authenticity, creativity, and place-specific terroir (Brewers Association 2018c). Since the sector first emerged in the 1980s, Portland has become a significant centre of craft beer production and innovation. The city is home to the most breweries of any city in the world, a substantial cluster of which are located in the CEID (Oregon Brewers Guild 2017).

The chapter begins by reviewing the role of production in cultural-economic policy, highlighting the ways in which dominant policy narratives have divorced cultural production from manufacturing. In doing so, I follow other scholars in arguing that these narratives ignore the changing nature of industrial production, particularly the rise of craft-based manufacturing (see Grodach et al. 2017). I then trace the evolution of the CEID from a light manufacturing and warehousing district to a hybrid creative-industrial neighbourhood. Here, I draw upon analysis of City of Portland planning documents and interviews with public officials to highlight the role of urban policy in supporting this transformation. I then consider how craft breweries have emerged as part of the district's creative-industrial milieu, drawing upon interviews with craft brewery owners and employees to uncover the spatial and locational requirements of craft breweries, and to highlight the ways in which policy-supported land use changes are presenting both challenges and opportunities for craft breweries in the CEID. In doing so, this paper substantiates and extends arguments regarding the importance of preserving urban industrial land and of considering the productive needs of small-scale craft producers, which tend to be ignored by dominant policy narratives (see Curran and Hanson 2005; Hughes 2012; Grodach et al. 2017). In particular, I demonstrate that, while preservation has played an important role in facilitating the CEID's creative-manufacturing economy, retaining industrial zoning alone is not enough to inhibit industrial displacement. By showing how creative sector development and residential uses now post a threat to industrial production, including craft brewing, this paper argues that land use

policies must go one step further in recognizing and accommodating the unique ways in which craft-based manufacturing economies marry industrial, cultural, and commercial uses.

4.2 Placing production in cultural-economic policy

As Miles and Paddison (2005) note, "the idea that culture can be employed as a driver for urban economic growth has become part of the new orthodoxy by which cities seek to enhance their competitive position" (p. 833). By now a familiar script, this form of cultural economic policy-making first emerged in the 1980s as cities grappled with the effects of deindustrialization, systemic unemployment, and neoliberal political-economic restructuring. In this context, experience and entertainment have become the "new economic grail" and cities have adopted policy agendas designed to reinvent the inner city as a site of consumption (Hannigan 2003, p. 352). These agendas have been reinforced in recent decades with the popularization of Florida's (2002) argument that cities would do well to create the tolerant, diverse, and amenity-rich environments attractive to the 'creative class,' a cadre of skilled, educated, and mobile economic actors assumed to be the new key to economic prosperity. To this end, cities have adopted policies focused on the provision of cultural, recreational, and quality of life measures as a means of attracting investment and human capital.

This prevailing cultural-economic policy narrative has been critiqued for its emphasis on particular forms of culture and creativity, specifically those that are deemed to make a city attractive to tourists and creative talent (Boren and Young 2013; Jakob 2010; Gibson and Kong 2005; Gibson and Klocker 2005; Peck 2005; Pratt 2008). By limiting the value of culture and creativity to place-making and consumption, urban policies discount the ways in which creative industries are drivers of economic growth in their own right (Pratt 2008). A number of studies have, for example, emphasized the significance of creative industries to contemporary urban economies, highlighting their contributions to employment and value-added production (Markusen and Schrock 2006; Power 2002; Pratt 1997; 2008; Scott 2007). However, despite numerous studies that have documented key aspects of creative industries production systems, cultural economic policy-making has shown little interest in understanding or facilitating the productive aspects of creative industries (Mommaas 2004; Catungal et al. 2009; Evans 2009; Ho 2009). In many cases, this oversight has created tensions between policy directives and actual creative economic practices (O'Connor and Gu 2010). In their study of Toronto's Liberty

Village, for example, Catungal et al. (2009) demonstrate how prevailing creative city policy discourses have actually worked to displace certain segments of the creative class itself, including artists, crafts-makers, photographers, and non-profit arts organizations (see also Indergaard 2009; Jakob 2010).

By focusing on consumption, amenity provision, and entertainment, orthodox cultural economic policy-making has also enforced narratives that divorce cultural production from manufacturing. Contemporary cultural economic policy-making espouses post-industrial discourses that see the cultural economy as assuming strategic importance in the wake of industrial restructuring (Mommaas 2004; Rantisi et al. 2006; Indergaard 2009; Grodach et al. 2017). Yet, as Curran and Hanson (2005) point out, the assumption that industrial businesses are dying can become a self-fulfilling prophecy due in large part to the city government's failure to preserve industrial land and to adequately protect it from encroaching development. Indeed, in many cases, cultural economic policy-making has actively encouraged industrial displacement and the "revitalization" of traditional industrial districts into creative economic districts (see Curran 2004; 2007; Catungal et al. 2009; Sacco and Tavano Blessi 2009; Casellas and Pallares-Barbera 2012). In the case of Montreal's Mile-Ex neighbourhood, for example, Sprague and Rantisi (2018) show how city interventions designed to attract creative industries, including the removal of loading docks, efforts to add greenspace, and changes to parking regulations, have encouraged industrial displacement by making it more difficult for the district's manufacturing businesses to operate. In this way, cultural-economic policy-making can initiate a process of 'productive gentrification' whereby economic uses deemed to be more creative are encouraged and accommodated, while other uses are discouraged and excluded (Sprague and Rantisi 2018; Casellas and Pallares-Barbera 2012).

However, by casting manufacturing and the working classes as 'creative have-nots' (Peck 2005), cultural-economic policy has largely failed to recognize the changing nature of manufacturing and the ways in which it increasingly intersects with creative industries (Clark 2014; Grodach et al. 2017). Craft-based manufacturing, for example, has experienced a notable revival in a number of sectors, emerging in advanced economies to meet a growing demand for 'authentic' and handmade products (see Leslie and Reimer 2006; Warren and Gibson 2014; Luckman 2015; Ocejo 2014; Gibson 2016). This form of production challenges the idea that creativity and design are separate from physical processes of making by drawing upon cultural modes of production to create objects infused with notions of quality, tradition, and localized production (Carr and

Gibson 2016). The rise of these sectors in advanced urban economies also challenges post-industrial narratives (Williams 2011). Craft knowledge is based on materially-specific haptic skills, which are developed through localized production networks (Blundel and Smith 2013; Gibson 2016). Inner city industrial areas are important for small-scale craft manufacturers who rely on proximity to similar businesses and suppliers, skilled labour, and a large market of urban consumers (Grodach et al. 2017). The density and diversity of urban areas also provide a source of creative inspiration by allowing the co-mingling of different ideas and practices (Stolarick and Florida 2006). Moreover, like other cultural producers, craft-based sectors draw upon notions of place as a means of product differentiation (Scott 1996; 2000; Molotch 1996; Leslie and Reimer 2006). In this regard, the gritty character of inner-city industrial areas can provide aesthetic inspiration, as well as ties to historic legacies of manufacturing, thus emphasizing the localness of production (Hutton 2006; Rantisi and Leslie 2010; Mathews and Picton 2014). As a result, craft sectors are often intimately entangled with regional identity formation and are locally embedded in ways that present a disincentive to offshoring (Warren and Gibson 2014; Thomas et al. 2013; Marotta et al. 2016).

Although craft production has attracted increasing attention in cultural economy research, the ways in which craft-based manufacturers interact with urban policy has received scant attention to date. What little research exists has shown that the presence of craft clusters has been used as an urban branding tool or a prop for gentrification (see Hughes 2012; Mathews and Picton 2014). As Marotta et al. (2016) argue, by cultivating a cultural-industrial milieu that becomes associated with a particular locale, the actions of craft producers attract tourists, companies, and residents, thereby driving up real estate prices and initiating processes of gentrification. As gentrification has become a globalized urban strategy (Smith 2002), there is evidence that local governments are becoming savvy to the potential gentrification effects that come with an established craft cluster. In her study of jewelry designer-makers in Birmingham, for example, Hughes (2012) illustrates how craft producers are seen by policy-makers as potential magnets for tourism and more profitable business sectors. Regeneration schemes for Birmingham's Jewelry Quarter focus not on fostering industrial development, but on encouraging physical improvements and mixed-use development designed to make the district more attractive to real estate development (Pollard 2004). Despite the fact that craft is well-placed to respond to the growth in niche market consumption (see Lash and Urry 1994; Featherstone 2007), cultural economic policy reduces craft production to a marketing device designed to encourage the 'revitalization' of a

neighbourhood, paying little attention to the needs of small-scale craft manufacturers (Pollard 2004; Hughes 2012). As a result, such initiatives threaten to displace craft production through increased rents and the associated erosion of the material and social networks of production (Pollard 2004).

As an increasingly prolific example of a craft-based manufacturing sector, craft brewing has also caught the attention of urban policy-makers, who have come to see breweries as potential anchors to cultural-economic redevelopment schemes (Lubin 2016; Hughes 2018). While some studies have questioned the extent to which these strategies actually impact neighbourhood change, others have argued that craft breweries can play an important role in upgrading strategies as they typically have capital constraints that make the affordability of disinvested areas attractive and they can evoke the industrial heritage of a district while simultaneously producing new spaces of cultural consumption (Barajas et al. 2017; Weiler 2000; Mathews and Picton 2014). What these existing studies lack, however, is a focused consideration of the fate of craft breweries as small-scale manufacturing businesses in areas subject to such schemes. Echoing Hughes' (2012) findings, Mathews and Picton (2014) suggest that cultural-economic policy-making may be forcing breweries to move production off-site. Thus, despite work that suggests linkages between gentrification and craft manufacturing (see Curran 2010; Walker and Fox Miller 2018), questions remain as to whether this is the case for all types of craft-based manufacturing and whether productive uses can withstand later stages of gentrification. As the case study below demonstrates, craft breweries are much closer to old economy manufacturing than other craft-based manufacturing sectors (e.g. they are noisy, smelly, require industrial space and zoning), which creates particular policy challenges and brings up questions of their long-term compatibility in cultural-economic redevelopment strategies.

4.3 Urban policy and Portland's Central Eastside: the changing face of an industrial sanctuary

Located directly across the Willamette River from downtown, the CEID is one of Portland's oldest industrial areas (Figure 8). Throughout the latter half of the 19th century, as Portland developed an economy based on the distribution of farm and forest products, the CEID emerged as a key centre of agricultural distribution, earning it the nickname 'produce row' (Gibson and Abbott 2002; Portland Bureau of Planning and Sustainability 2014). Industrial uses in the district

expanded throughout the first half of the 20th century and into the post-war period, with light industry, warehousing and transportation becoming the neighbourhood's key economic functions (Banis and Shobe 2015).

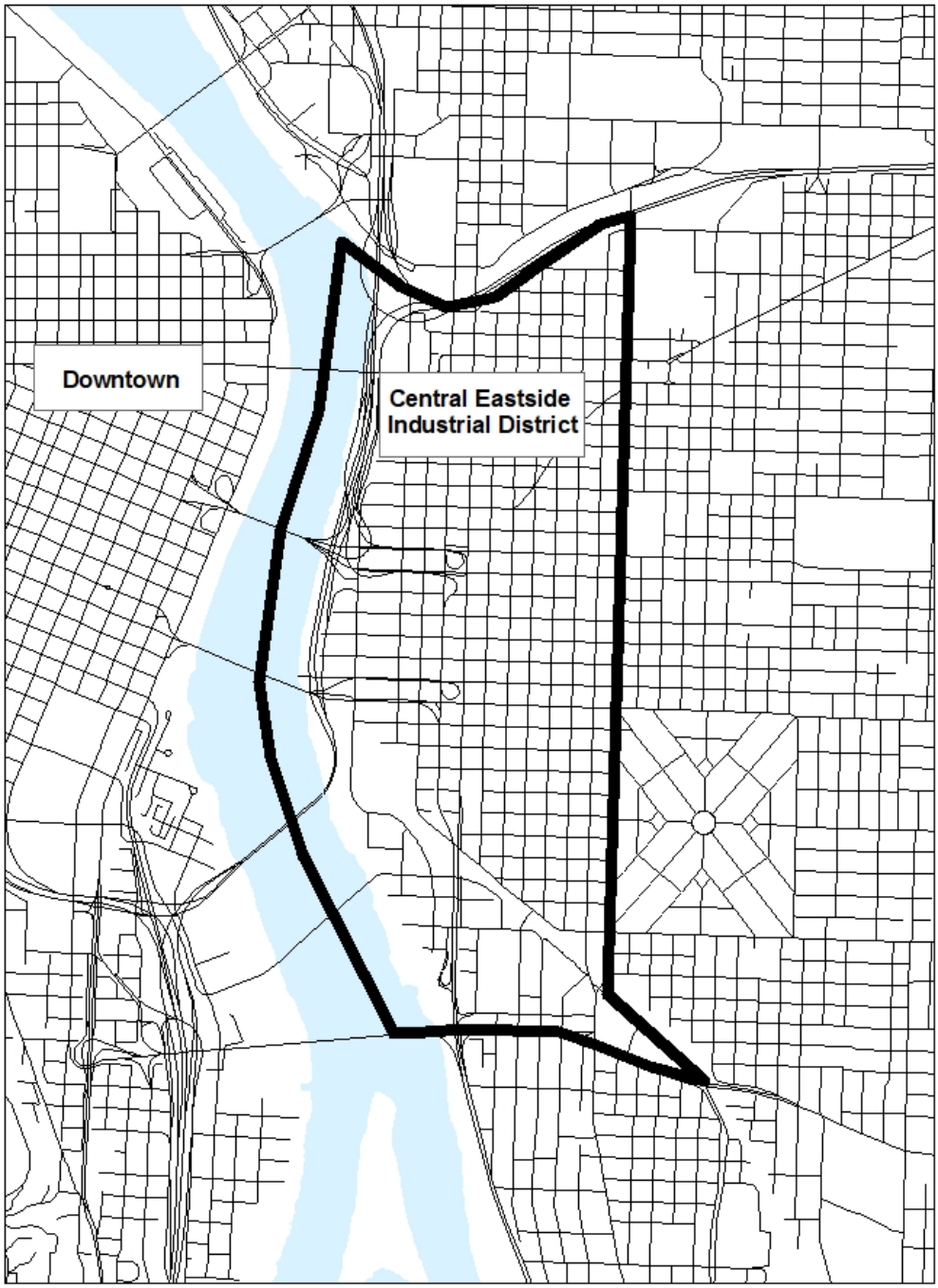

Figure 8. Portland's Central Eastside Industrial District

4.3.1 CEID becomes an industrial sanctuary: 1970s-1999

Throughout the 1970s, however, Portland began to experience significant loss of industrial space in the CEID. A number of distribution businesses left the area during this time, bound for new, single-story warehouses in the city's suburbs (Portland Bureau of Planning and Sustainability 2015). Concerned by these trends and hoping to encourage industrial development in the district, the City of Portland decided to protect the district's industrial base by dedicating the CEID as an 'industrial sanctuary' under its 1980 Comprehensive Plan (Portland Bureau of Planning and Sustainability 1980). However, the fate of the CEID as an industrial sanctuary would not be secured until zoning amendments designed specifically to protect industrial uses were adopted as part of the 1988 *Central City Plan*. The *Central City Plan* encompassed downtown as well as several adjacent districts, including the CEID. Land uses in the CEID, and, in particular, the fate of the industrial sanctuary, were the subject of much debate and controversy during the two and a half year planning process. As a consultant's report commissioned near the beginning of the planning process states,

> Right now, [the Central City] is an area of great diversity, home of the region's highest paying jobs and some of its lowest paying jobs. A decision of the Central City Plan may be whether to retain this diversity through the continued existence and creation of warehousing and light industrial uses, or to move basically toward office, as many core areas in other major metropolitan centers have done. (Don Barney and Associates 1985, as cited in Bello 1993, p. 78)

New proposals for office development had recently been made in the district and, during the planning process, an influential group of local architects championed a post-industrial vision for the district based on the concept of a central business district that spanned both sides of the Willamette River (Bello 1993). Indeed, the location of the CEID directly opposite downtown and bookended to the north and south by the (then planned) convention center and Oregon Museum of Science and Industry, left many, including the citizen's steering committee struck to advise on plan goals and policies, feeling that redevelopment in the district was inevitable (*Oregonian* 1986). However, planning staff, the Portland Development Commission, and the Central Eastside Industrial Council – a group of local businesspeople – remained committed to an industrial CEID. Indeed, in August 1986, in the middle of the planning process, the city's economic development arm, the Portland Development Commission, designated the CEID as an

urban renewal area for the express purpose of retaining and promoting employment uses (Prosper Portland 2018). Despite arguments regarding the inevitability of a post-industrial transition in the area, these groups argued that allowing residential uses would erode the potential of otherwise healthy businesses and felt that the CEID could compete with the suburbs for industrial businesses given the proposed construction of additional freeway access points in the district (Portland Development Commission 1986; Bello 1993). Ultimately, these groups swayed Portland city council, and the industrial sanctuary was maintained and enforced through protective zoning.

As one City of Portland planner notes, this was a novel approach to industrial zoning at the time:

> Most zoning codes around the country designate industrial areas for the purpose of keeping industrial impacts out of other parts of the city… Portland in 1980 decided that [the CEID] is an area where we want to encourage industrial growth, and particularly manufacturing. So, it was a much different way of looking at it. Not only was virtually all large-scale distribution allowed [under the 1988 zoning], and it anticipated some off-site impacts associated with them… it limited other types of uses in that area in order to encourage industrial growth (personal interview, November 9, 2015).

Under the 1988 *Central City Plan* zoning amendments, over 60% of the district retained a flexible, performance-based industrial zoning, which allowed virtually all manner of light industrial uses, excluded incompatible uses (including residential), and placed significant limits on office and retail uses. Zoning amendments also reduced the allowable density in industrial areas in an effort to discourage speculation on industrial lands. Finally, the zoning confined commercial and residential development to areas that already contained significant concentrations of nonindustrial use (Portland Bureau of Planning 1988).

Industrial sanctuary policies were relatively successful in retaining an industrial economy in the CEID throughout the 1980s and 1990s. As Abbott (2004) notes, rather than deindustrialization, Portland's inner-city industrial areas experienced gradual reinvestment throughout these decades. Manufacturing jobs grew by 18% in Portland between 1980 and 2000, compared to a 9% loss of manufacturing jobs nationally (City of Portland 2018). However, the nature of the city's industrial economy shifted over those decades. Manufacturing growth in the 1990s, in particular, was driven by a high technology complex of computers, electronic and electrical machinery,

instruments and computer services; employment in these industrial categories roughly doubled during this decade (Gibson and Abbott 2002).

The growth of Portland's high technology economy has had significant implications for land use in the CEID. The sector has a marked geography, with large manufacturing firms headquartered in suburban Washington County, and smaller software and multimedia firms concentrated in the central city. Inner city industrial space is coveted by these latter firms, which has put pressure on districts like the CEID (Marotta et al. 2016). In the 1990s, the presence of software and multimedia firms helped transform the Pearl District, a former industrial area on the northern fringe of downtown, into an area of upscale condos, retail spaces, and restaurants (see Jones 1999). By the early 2000s, pressure from this new economic growth was beginning to be felt in the CEID as well, with many industrial businesses in the district fearing they would soon find themselves in a "mini-Pearl" (Walton 2004, p. 138).

4.3.2 Remaking the CEID: 1999-present

Reflecting the growing popularity of policy narratives focused on culture and creativity as drivers of economic growth, in the late 1990s the city began to develop an economic development vision for the district that would support the coexistence of high-technology, creative, and knowledge-based industries alongside traditional industrial uses. Since then, exactly how to accommodate this "new urban economy" while retaining the industrial character of the CEID has been a key point of policy discussion (Portland Bureau of Planning 2003, p. 1). Several significant policy changes have been introduced since the late 1990s, the first occurring in 1999 when the city amended zoning to accommodate "digital production" uses. In recognition of the specific office needs that distinguish digital production from traditional manufacturing uses, zoning was amended to allow digital producers to develop office space up to 60,000 square feet through a conditional review process (Portland Bureau of Planning 2003). Although zoning already allowed office development through the conditional review process, existing provisions required development applicants to demonstrate a need for an industrial location, which acted as a significant barrier to office development in the district. Significantly, this restriction would not apply to digital production uses under the new regulations, thus providing a focused means for accommodating software firms and creative industries in the CEID (Portland Bureau of Planning 2003).

However, these provisions did not set the issue of accommodating 'new economy' uses aside for very long. Indeed, a 2002-2003 city-sponsored study of industrial zoning in the CEID concluded that these provisions were insufficient and set out to find additional ways to accommodate creative businesses without negatively impacting existing industrial businesses. The specific zoning recommendations arising from this study, however, were predominantly focused on accommodating new uses rather than encouraging the continued viability of industrial uses in the district. For example, key recommendations included: allowing "digital production" uses by-right under the zoning rather than through a conditional review process, removing restrictions on the number and size of individual office uses allowed per site (up to a total of 60,000 square feet per site), and providing additional flexibility for retail and office uses in designated heritage buildings within the district (Portland Bureau of Planning 2003, p. 2-3). Importantly, these recommendations were the result of a stakeholder-led process:

> The consensus among [Central Eastside] stakeholders involved in the [study] process to-date indicate a desire for a blend of more traditional industrial uses with newer ones that might include office or office-like space as part of their operations. Stakeholders have also expressed a desire to avoid a rapid and fundamental change away from the overall industrial character within the district's industrial areas (Portland Bureau of Planning 2003, p. 5).

Stakeholders represented during the process included CEID business owners, who have been concerned with retaining the industrial character of the neighbourhood in order to support the continued viability of their businesses, as well as land owners, developers, and real estate agents keen to attract new uses, and therefore higher land values, to the area (Portland Bureau of Planning 2003). While the competing goals of the study reflect the diverse interests represented by stakeholders involved in the planning process, the resulting recommendations indicate the relative power and dominance of the latter group, a characteristic common in other redevelopment processes involving older industrial districts (see Pollard 2004; Catungal et al. 2009; Hughes 2012).

The outcome of these recommendations would not be reflected in zoning regulations until 2006, however, when the City adopted the Employment Opportunity Subarea (EOS), a zoning overlay covering roughly 57 blocks of the district generally located west of Martin Luther King Blvd., between SE 3rd and Water Avenues (Portland Bureau of Planning and Sustainability 2015). The EOS was designed to accommodate "emerging industrial sectors" seeking incubator space to

start their businesses (Portland Bureau of Planning and Sustainability 2015, p. II-8). Specifically, the EOS created additional flexibility for retail and office uses. A key feature of the zone was the inclusion of provisions for industry-serving businesses, which do not require frequent customer or client visits, by allowing such firms to occupy up to 60,000 square feet of office space outright, rather than through a conditional review process (Portland Bureau of Planning 2018). However, as one city planner notes, 'industrial offices' developed under these provisions have tended to house high-technology and creative industries:

> [Industrial offices] are mainly information sector offices. Software is the biggest. Graphics is another big example, and industrial design, but also architecture and engineering. They all do a lot of work for industrial companies and they tend to work in the gritty industrial areas and be attracted to them (personal interview, November 9, 2015; Figure 9).

Figure 9. Creative workspace for lease in the Central Eastside, 2016

Importantly, the EOS was applied as an overlay to industrially-zoned properties located in "the heart of the industrial sanctuary" and covered almost 20% of land zoned for light industry in the district (Portland Bureau of Planning and Sustainability 2015, p. II-3). This policy decision was made despite the fact that approximately one-quarter of the district was already under a very flexible 'employment' zoning category designed specifically to allow market forces to dictate land development processes (Portland Bureau of Planning 2003). This zoning category, designated 'EX,' specifically anticipated industrial displacement by higher-rent commercial and residential development:

> To a greater extent than most zones, the EX zone allows market factors to determine what particular use develops on a site. The zone allows uses to change over time as circumstances change… [T]his flexibility creates a greater degree of uncertainty and… will allow higher-value uses to displace lower-value uses. Although industrial uses are allowed, it is expected that, over time, they could be displaced by commercial and housing development that pays higher rents per square foot of land. (Portland Bureau of Planning 2003, p. 19).

This process has begun to occur in the CEID, becoming particularly palpable since the 'Great Recession' of 2008-2009. As of 2015 there were roughly 1,700 new residential units approved, under construction, or recently completed in the district (Portland Bureau of Planning and Sustainability 2015; Portland Bureau of Development Services 2018; Figure 10).

Figure 10. Mixed commercial / residential development under construction at SE 11th and SE Taylor Streets, 2016

Zoning amendments have been accompanied by significant investments in multi-modal transportation infrastructure and public amenities, including the Oregon Museum of Science and Industry (completed in 1992), the Vera Katz Eastbank Esplanade, which runs through the CEID along the Willamette River (completed in 2001), the east side streetcar, which connects the district to downtown (completed in 2012), the Portland-Milwaukie light rail line (completed in 2015), and the Tilikum Crossing, a pedestrian / bicycle / public transportation bridge connecting the CEID to downtown (completed in 2015). These projects have improved access and further attracted visitors and investors to the area. The presence of the east side streetcar, for example, has increased interest in the Martin Luther King / Grand corridor, which is now seeing a significant amount of mixed commercial / residential development (Portland Bureau of Planning and Sustainability 2015; Portland Bureau of Development Services 2018).

Zoning amendments and transportation initiatives have encouraged significant land use changes in the CEID. Whereas in 1981 63% of the EOS housed industrial uses, by 2014 industrial uses

comprised only 35% of this area (Banis and Shobe 2015). Since the introduction of the EOS, in particular, there has been significant growth in non-industrial uses (Portland Bureau of Planning and Sustainability 2015). By accommodating higher-rent uses, zoning changes have priced out many traditional wholesaling and manufacturing businesses such that, today, the district's specializations include professional, scientific and technical services, food services and production, and software publishing (Guo 2014).

4.4 Craft brewing and urban policy in the CEID

Craft brewing has also emerged as a key growth industry and an economic specialization of the CEID (Figure 11). Breweries began opening in the district in the 1990s, with a significant concentration evident by the end of the decade (American Breweriana Association 2018). The 1990s was a period of significant growth in the craft brewing sector nationally, and in Portland coincided with breweries opening further from downtown, including in the CEID (Hindy 2014; Walker and Fox Miller 2018). While all but one of the original breweries in the district closed during the early 2000s – a period of relatively flat growth at the national scale (Brewers Association 2018a; Watson and Gatza 2015) – a substantial number of new breweries have opened in the CEID, particularly since 2010. In fact, over half of the district's current breweries opened in the 2010s, a period of rapid growth for the sector on the national scale, and of substantial land use change in the CEID (Oregon Brewers Guild 2018; Brewers Association 2018a; Watson and Gatza 2015; 2016).

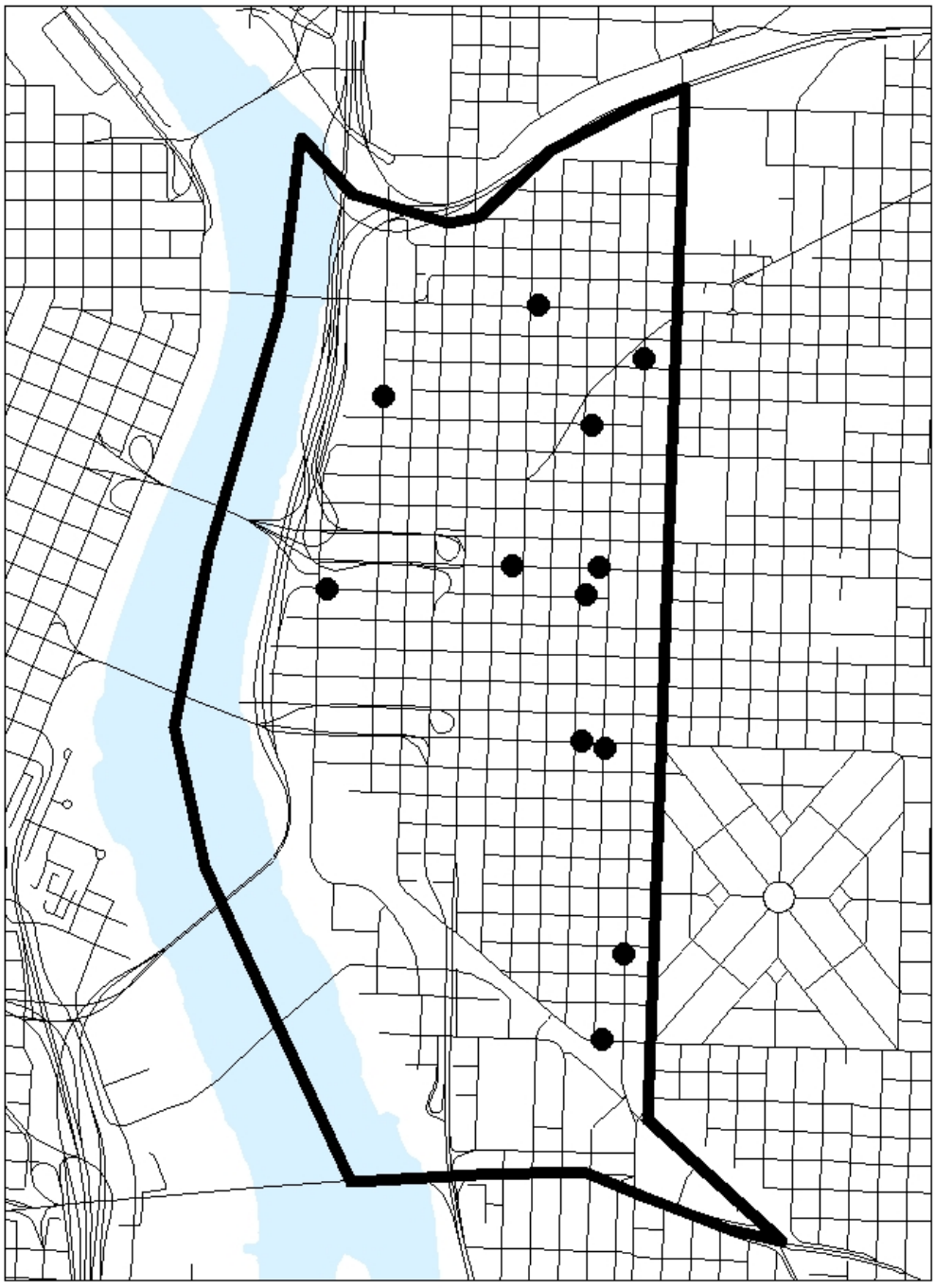

Figure 11. Craft breweries in the CEID, May 2018

Breweries have been attracted to the CEID for several reasons. First, especially in the 1990s, the district offered relatively affordable industrially-zoned space, which is particularly significant for start-up breweries with limited capital. Its central city location also puts craft breweries close to a

large potential consumer base, while access to key transportation routes facilitates distribution. Moreover, the district's older industrial building typologies lend themselves well to the particular space requirements of craft breweries, offering the high ceiling heights and relatively large floorplates required by brewing operations (Interviews; Weiler 2000).

Because craft brewing combines manufacturing and cultural production, broader aspects of the material landscape have also been significant to the development of a craft brewing cluster in the CEID (see Gibson 2005; Hutton 2006; 2008; Watson et al. 2009; Rantisi and Leslie 2010). The perceived local embeddedness and authenticity of production processes, and the ways in which they combine tradition, handmaking, innovation, and creativity are a key source of cultural value in craft beer (Flack 1997; Mathews and Picton 2014). Craft breweries, including those in Portland, often enlist aspects of place in the naming and marketing of their products (Flack 1997; Interviews). Like many creative industries, older inner city neighbourhoods have been particularly attractive to craft breweries and creative industries as a result their unique materialities (see Hutton 2006; 2008; Rantisi and Leslie 2010). Older industrial districts offer a means of aesthetic distinction, distancing craft industries from the mainstream urban economy, while also reinforcing notions of localness and authenticity through connections to historic legacies of production (Hutton 2006; Rantisi and Leslie 2010; Mathews and Picton 2014; Figure 12). Moreover, by locating in a still active industrial district like the CEID, craft brewers are able to construct a visible link between production and consumption, thereby reinforcing notions of authenticity and local embeddedness. Material aspects of the CEID also play a role in mediating creative production in the craft brewing sector by shaping interactions between producers (see also Watson et al. 2009; Lloyd 2010; Rantisi and Leslie 2010). The unique density of breweries in the CEID facilitates encounters among craft brewers, thereby serving as a key source of collaboration, creative inspiration, and innovation for breweries in the district (Interviews).

Figure 12. Hair of the Dog Brewery occupies a renovated 90-year-old warehouse in the CEID (Carter 2010). From "Hair of the Dog Brewery," by R. Uchytil, 2012, https://www.flickr.com/photos/richtpt/8095461332. Copyright 2012 by Rich Uchytil. Available under Public License https://creativecommons.org/licenses/by-nc-sa/2.0/legalcode

Craft brewers also enlist aspects of interior design in order to construct the authenticity and localness of their product. In this sense, the adaptability of the CEID's older industrial building typologies has been a significant attractor to craft breweries (see Markus 1994; Hutton 2006). Like other forms of craft-based manufacturing, craft brewing is characterized by workspaces that interweave production and consumption in unique ways (Fox Miller 2017). A key part of the construction of authenticity in craft beer is the ability to consume it in an environment where you can hear, see, and smell the beer being made. As a result, craft breweries often invite consumers to experience production by locating pubs and other retail spaces alongside brewing operations (Figure 13). One brewery owner describes how this practice has helped distinguish their product:

> We wanted to eliminate that barrier [between production and consumption]… People really like being in the brewery and that kind of contextual experience I think makes the beer taste even better. So, having [the brewery] laid out in that integrated way I think really accelerated our growth... We developed a lot of regulars and people bringing in out of towners and brewery tours and that kind of stuff because it was this kind of singular experience (personal interview, March 11, 2016).

Figure 13. A low fence is all that separates the pub from the brewery at 10 Barrel Brewing in Portland, 2016.

Co-locating production and retail facilities creates an immersive setting that facilitates face-to-face encounters between brewers and consumers. As another brewery owner explains:

> The whole purpose of being a brewpub is that you brew beer… You want to feel it... We get asked for tours and stuff because people… [can] look at [the brewery] and they point around and it's like, 'do you have any questions?' And they do and that's cool" (personal interview, March 4, 2016).

By encouraging such conversations, craft breweries provide space for the development of knowledge and community through the cultivation of shared cultural values and understandings (see also Ocejo 2010; Warren and Gibson 2014). As one interviewee explains, the development of shared values enlists consumers as active participants in the production process:

> [S]ome people that are regulars treat [purchasing craft beer] like they are almost contributing to a charity. And, of course, that's been augmented by us developing personal relationships

> with them and then they get a little bit of access to the woes of the business and they are like, 'I'm going to buy twice as much now.' They feel like they are stakeholders in something that they're not actually stakeholders in (Brewery owner, personal interview, March 11, 2016).

In an era where consumption has replaced traditional institutions of family, ethnicity, religion and civic organizations in constructing personal identity, craft beer consumption allows people to feel that they are a part of something (Featherstone 2007; Lash and Urry 1994; Putnam 2001; Flack 1997). Importantly, in an era where food and drink have become highly aestheticized, craft beer consumption also serves as a means of obtaining cultural capital and of performing class distinction (Bourdieu 1984; Lash and Urry 1994; Donald and Blay-Palmer 2006; Ocejo 2012; Johnston and Baumann 2010). As such, the hybrid production / consumption spaces created by craft breweries have also allowed them to become new spaces of elite consumption.

The hybrid production / consumption spaces of craft brewing also offer significant benefits to craft brewers. Co-location helps foster codevelopment practices, with consumers giving input on existing and new products (see Grabher et al. 2008). For example, interviewees highlighted the way in which an on-site pub functions as a key test market for new products:

> [H]aving the pub here is very helpful because we have a kind of baseline where we can gauge people's interest in things. If the beer sells really well here and people love it, then I can [say to the brewing staff], 'hey, give me 8-12 kegs to sell on the market because people love it. People are talking about it.' Or, I will have accounts come in and say, 'hey we had dinner [at the pub] last night, I loved this beer, can I get a keg'" (Brewery sales manager, personal interview, March 2, 2016).

Moreover, co-location provides an opportunity for consumers to gain an intimate knowledge of production processes, thereby blurring the boundaries between expert and layperson and leading to the development of a particularly sophisticated local consumer base (see Chapter 2). In this way, consumers are able to provide nuanced and informed feedback that help steer the direction of creative endeavours:

> It's a very educated and mature beer audience here, for better or worse. Everyone is very critical, but you do get good feedback. People will say 'that's not really a good style' or 'that didn't work out so well' [rather than 'I don't like that'] (Brewery owner, personal interview, March 4, 2016).

Finally, the ability to co-locate retail spaces alongside production also provides an additional source of revenue to craft breweries, thereby facilitating creative processes by reducing financial pressure. As one interviewee notes:

> We serve a ton of beer through our two pubs, so if we want to experiment with something, there's really very little cost to that because… we can serve it all through our pubs without having to [package and distribute it] on the market (Brewer/brewery owner, personal interview, February 3, 2016).

The reduction of financial pressure that an on-site pub offers can be particularly significant during the initial years of operation as breweries work to establish their brand and reputation. It also allows new breweries to open sooner than they might otherwise as they can open the pub while they finish building out the brewery. Many new brewpubs in Portland employ this strategy, serving beer brewed in collaboration with or by other local breweries until they are able to produce their own (Interviews; Dunlop 2017). In this sense, craft breweries have benefitted significantly from zoning provisions in the district that allow retail space alongside manufacturing uses.

Recent transportation improvements and land use changes have also been of benefit to craft breweries in the CEID. Reflecting Curran's (2010) argument that manufacturers of bespoke products may be able to withstand conditions of gentrification, many brewery owners in the CEID viewed these changes as generally beneficial to their businesses. In particular, they noted how such changes have made the district more accessible to tourists and visitors and have placed more potential customers in proximity to their operations (Interviews). Craft breweries have also contributed to the transformation of the CEID as the district's craft brewing cluster has become a regional destination and a significant component of the district's identity (see Weiler 2000; Mathews and Picton 2014; Marotta et al. 2016; Walker and Fox Miller 2018). Indeed, the most significant period of craft brewing growth – the 2010s – has coincided with substantial residential and employment growth in the district (Portland Bureau of Planning and Sustainability 2015).

However, CEID brewery owners also expressed apprehension over land use changes in the district, noting how they have brought new challenges to their businesses. As one brewery owner explains, real estate speculation has increased as a result of policy changes and is putting displacement pressure on breweries and other manufacturing industries:

> [A] lot of these buildings have been owned for a long time by the same family. So, this building across the street is up for sale solely because the guy, he's not ready to retire, but he's like 'it's time to cash in.' I've heard a lot of other people thinking about selling their building because they could get millions and millions of dollars for it. So, that price tag is going to encourage a certain type [of business]. It's not going to encourage a manufacturing business. It's going to encourage a tech company or a big housing development project (Brewery owner, personal interview, March 11, 2016).

As in other industrial districts subject to cultural economic redevelopment schemes, interviewees noted how their regular working patterns were affected by the introduction of new uses to the district (see Pollard 2004; Catungal et al. 2009; Sprague and Rantisi 2018). In particular, interviewees mentioned that transportation initiatives and new development have created parking problems, traffic congestion, and maneuverability issues that complicate freight movement within the district. Craft breweries require truck loading in order to receive raw materials and distribute packaged beer. One brewery owner notes how craft breweries are experiencing challenges as freight movement in the district becomes increasingly strained:

> Really kind of basic barriers to our operation is the amount of vehicle traffic that we have going up and down here and loading freight in and out. Parking is a huge issue… The city is starting to ticket trucks that are idling, even if we are actively loading things in and out (personal interview, March 11, 2016).

Off-street parking is limited as many buildings do not have on-site parking. With more employees and visitors frequenting the district, street parking has become increasingly competitive, impacting freight loading. As a result, freight movement issues have been encouraging the displacement of industrial businesses and have been identified as a key challenge to the industrial future of the district (Portland Bureau of Planning and Sustainability 2014; 2015; see Sprague and Rantisi 2018 for a parallel example).

Given these challenges, several CEID brewery owners expressed frustration and confusion over the place of manufacturing within recent policy discourses. As one brewery owner explains:

> [T]he city wants this [area] to gentrify. They are encouraging the gentrification in the direction that it is [occurring], but yet they are policing it in kind of different ways. Like, they want it to be manufacturing and housing. They are very adamant about not losing the

> manufacturing aspects, but all the changes have been more pro-housing, pro-white collar business (personal interview, March 11, 2016).

Craft breweries sit in a particularly precarious position within existing policy discourses for the district due to the hybrid nature of their production systems, which are part creative industry and part 'old economy' manufacturing. Because the physical process of beer production is noisy, smelly, dirty, and has significant industrial space requirements, craft brewing is much closer to 'old economy' manufacturing than many other cultural economic sectors. Yet, craft brewers also rely upon visitor traffic and the cultivation of consumption spaces that foster creativity and innovation. As a result, craft breweries find themselves simultaneously encouraged and threatened by land use changes, leaving them unsure of their future in the CEID.

4.5 Conclusion: the future of craft breweries in the CEID?

Responding to calls for policy-focused research that considers the increasing points of intersection between creative industries and manufacturing, this paper has highlighted the spatial and locational needs of the craft brewing industry, and the ways in which it interacts with urban policy in Portland's CEID (see Pratt 2008; O'Connor and Gu 2014; Grodach et al. 2017). As the case shows, craft breweries rely on a production model that blurs the boundaries between production and consumption, preferring to co-locate consumption spaces alongside production in order to educate consumers and facilitate the creative process. As a result, craft breweries seek out adaptable space, which can effectively accommodate both functions. In this sense, the spatial needs of craft brewers combine with those of creative industries, which value older industrial districts for their durable and adaptable building typologies, as well as their symbolic and aesthetic values (see Hutton 2006; Rantisi and Leslie 2010), with specific industrial requirements, notably high ceiling heights, floorplates large enough to accommodate brewing equipment, industrial zoning, and a location close to a large potential consumer base (see also Weiler 2000). The CEID, with its history of industrial use, its central city location, its industrial building typologies and zoning, has offered the ideal space for start-up craft breweries. Moreover, craft breweries have benefitted from policies protecting industrial zoning in the neighbourhood, as well as city-initiated land use changes, which have allowed the co-location of retail and productive uses, and have attracted additional visitors, residents, and investors to the

district. Craft breweries have also been a key part of this process, contributing to the identity and cultural cachet of the district through the production of elite spaces of consumption.

However, as this paper has shown, craft breweries are also threatened by the influx of new uses in the CEID, placing them in a uniquely precarious position in relation to land use policy. This position is likely to continue, with recent policy changes for the district, which include increases to the residential capacity of the district and the expansion of the EOS to encompass all industrially-zoned properties within the district (Portland Bureau of Planning and Sustainability 2015; 2017). As these new policy proposals push the CEID towards a more exclusive, consumption-oriented landscape, they raise significant questions regarding the future of craft brewing in the CEID. Although craft breweries are complicit in the production of new, elite spaces of consumption, experience in other Portland neighbourhoods suggests that as industrial production becomes increasingly strained, craft breweries may be forced to move elsewhere. In the 1990s, for example, accelerating gentrification forced several breweries out of Portland's Pearl District (Walker and Fox Miller 2018). While breweries have yet to be forced out of the CEID, newer breweries opening facilities in the district, such as Cascade Brewing, have chosen to locate retail spaces in the district, but to house production elsewhere. This reflects experiences in other cities where breweries have been forced to move a substantial component of their production elsewhere as a result of advancing gentrification (see Mathews and Picton 2014). This latter development can have significant consequences for craft breweries, as it compromises the perceived authenticity and localness of their products and sacrifices the benefits associated with co-locating production and consumption uses. As the City of Portland advances a program of residential conversion and 'productive gentrification' (Sprague and Rantisi 2018; Casellas and Pallares-Barbera 2012) in the CEID, it remains to be seen whether the productive side of craft brewing can remain, as the district becomes more residential and commercial in character.

The complexity of the relationship between craft brewing and urban policy in the CEID raises several significant points for a reindustrialized cultural-economic policy. First, craft manufacturing sectors blur the boundaries between manufacturing, cultural production, and retail, and thus have unique space requirements that do not fit easily within traditional zoning designations. On the one hand, the City of Portland has attempted to address this issue by adding flexibility to zoning for the CEID. However, given significant speculative real estate pressure in the district, this move will likely serve to further industrial displacement as higher rent uses out compete manufacturing. The restriction of residential uses within industrial zones is particularly

important in this regard, as residential land rents are generally higher than other uses. However, while preserving industrial land is an important component of a reindustrialized cultural-economic policy, policy-makers must also seek ways to accommodate the particular marriage of industrial and commercial uses that new craft manufacturers engage in. Zoning regulations could, for example, allow retail and office uses contingent upon the presence, and relative dominance in terms of square footage, of a productive use such as manufacturing or warehousing. This would limit the overall development of office and retail uses and significantly limit commercial gentrification processes that lead to the displacement of production. Such regulations could be combined with commercial rent controls, which would help further dampen speculative real estate pressure. In this sense, the latest policy direction for the CEID presents a potential example to monitor as the City of Portland attempts to allow additional land use flexibility in the district and has plans for additional research to create strategies specific to the retention of craft manufacturers (Portland Bureau of Planning and Sustainability 2015).

Chapter 5
Conclusion

Over the past several decades, craft forms of production have been lauded as the harbinger of economic growth in advanced economies, while the image of the free craft producer, routinely combining head and hand to produce goods with a unique aesthetic quality, has come to represent the antithesis of the alienated and deskilled mass production worker. In the discourse surrounding contemporary craft, not only does making handmade goods offer a means of generating income, it also reputedly confers psychological benefits to producers as it allows for the development of skill and facilitates feelings of pride in one's work (Sennett 2008). In this way, craft encompasses both a set of skilled and materially-specific labour processes, as well as the mind-set that accompanies that labour (Banks 2010; Sennett 2008; Carr and Gibson 2016). On the consumption end of the craft commodity chain, purchasing handmade goods allegedly amounts to an effective political statement against globalized mass production and mass consumption. However, craft consumers are overwhelmingly white and middle class, and just what this political statement amounts to remains an open question as craft seems to exist neither wholly within nor entirely without the global capitalist economy. Moreover, as Jakob (2013) notes, the story of craft production in the contemporary period is still one largely told from within the craft community itself.

This dissertation has sought to offer an alternative story of contemporary craft manufacturing, focusing on the emergence and growth of the craft brewing industry in Portland, Oregon. Rooted in a long lineage of thought that emphasizes the emancipatory potential of small-scale craft production for individuals, communities and economies, the 'third wave' of craft is having significant effects on industries and regions. In the context of the American brewing sector, the rise of craft forms of production since the 1980s has created a landscape where small, independent producers increasingly compete with multinational corporations. Having been all but erased from the industry, craft breweries have made a phenomenal return to prominence, consistently growing in numbers and gaining market share at the expense of large-scale producers. This dissertation highlights three key characteristics of contemporary craft manufacturing and considers their implications for industries and regions through the case of Portland's craft brewing sector. In particular, I argue that the resurgence of craft forms of

production has: 1) played a role in anchoring small-scale industrial production in advanced economies, thus challenging assumptions of industrial decline and a post-industrial future, 2) transformed the perception and desirability of manufacturing work, and 3) reconceived production facilities as spaces of both material and cultural production that merge industrial and commercial uses in ways that present challenges to urban land use policy.

5.1 Key Findings

5.1.1 Spatial Agglomeration and Local Embeddedness

In Chapter 2, this dissertation highlights the role of the contemporary resurgence of craft in embedding manufacturing in advanced economies, and the tendency of craft industries to cluster in particular locations. It does so by considering factors involved in the evolution of Portland's significant craft brewing cluster. Craft breweries first appeared in the city in the 1980s, placing it at the forefront of a national trend (Hindy 2014). Responding to calls for a historicized understanding of the emergence of contemporary craft production in particular locales, Chapter 2 aims to contribute to ongoing efforts to develop a conceptual framework for understanding the evolution of craft industries (see Gibson 2016; Patchett 2017; Gibson and Warren 2018). In this respect, Chapter 2 advances a framework that combines the work of Chris Gibson and colleagues (Gibson 2016; Gibson and Warren 2018), which emphasizes the role of place-specific materialities and embodied skills in the rise of contemporary craft production, with the evolutionary concepts of path- and place-dependence developed in economic geography and their attendant focus on the significance of the institutional environment in economic development (Grabher 1993; Storper 1995; 1997; 2013; Amin 1999; Martin 2000; Martin and Sunley 2006; Martin 2010; Mackinnon et al. 2009; Gertler 2010; Oosterlynck 2012; Leslie and Rantisi 2011; Hassink et al. 2014). The chapter also chapter builds on Gibson's (2016) preliminary framework by emphasizing the role of co-evolution between and among institutions and industries in embedding the development paths of craft manufacturing sectors in particular locales.

Tracing the evolution of Portland's significant craft brewing cluster, I find that a place-specific material environment comprised of a large regional brewery, a growing wine industry, and a changing dairy industry enabled Portland's early craft brewers to acquire the knowledge and

equipment necessary to develop skilled production techniques. While of lesser importance, the proximity of hops growing and malt production also afforded Portland's brewers with preferential access to key ingredients in beer brewing and, in the case of hops, also provided a key source of creative inspiration that has helped to define a regional brewing style. I also trace processes of co-evolution between Portland's craft brewing sector and the region's hops growing industry, demonstrating how the growth of craft brewing knowledge and skill has resulted in shifts in the cultivated landscape in terms of the variety of hops grown and has stimulated reinvestment as farms profit from increased demand. I also demonstrate how the growth of craft brewing has facilitated advances in agricultural science with the development of a unique hops breeding program dedicated to servicing the interests of the craft brewing industry, and with Portland's craft brewers playing a key role in processes of research and development. As a result, I argue that the material basis of production matters not only as a place-based legacy to be inherited and reworked into contemporary craft production processes, but also as a co-evolving component of contemporary craft economies that help embed craft clusters in particular locales.

In addition to the role of material factors, I find that the regional institutional environment has played a significant role in the rise of Portland's craft brewing sector. Institutional legacies specific to Portland were particularly significant to the early success of the sector. Historic regulatory structures allowed early brewers to minimize start-up costs by promoting a strong draught beer culture, meaning that early brewers could forgo bottling their beer, and by requiring relatively little in terms of excise taxes. Moreover, the city's unique culture of provincialism facilitated the development of a market for locally-produced craft beer, further enhancing the ability of early breweries to succeed. Following arguments regarding the importance of institutional co-evolution in creating the supportive infrastructure necessary for the ongoing success of creative industry clusters and the role of purposive action in path creation, I also find that institutional arrangements created out of the collaborative efforts of the city's early craft brewers have been significant to the ongoing development of the sector (see Mommaas 2004; Leslie and Rantisi 2011). The passing of the historic brewpub legislation in 1985, for example, was a result of collective efforts by the city's early brewers and had a profound effect on the costs required to start a brewery as well as opportunities for building a market and experimenting with new products. The collaborative efforts that resulted in the brewpub legislation also led to the development of the Oregon Brewers Festival and the Oregon Brewers Guild, two important venues for the early promotion of craft beer. Such instances of cooperation are also early

examples of a broader culture of collaboration that has developed and flourished alongside the sector. Collaboration has led to a proliferation of festivals and competitions that have encouraged the development of a relatively sophisticated local demand. Collaboration also plays a key role in the evolution and transmission of craft brewing knowledge and skill, as well as in processes of creativity and innovation.

Although much of the research on path dependence has emphasized processes of 'lock-in,' particular development paths are not linear or fixed (see Grabher 1993; Storper 1995; 1997; 2013). Indeed, ruptures may occur along the way as a result of both exogenous shocks and endogenous factors, which can alter the development trajectory of a particular industry and create possibilities for a new course of development (Martin 2010). The possibility of such a rupture is beginning to be felt as the craft brewing industry matures and shows stronger connections to global capitalist forces. As a result of these growing connections, the future of collaboration is being called into question. As craft breweries multiply and extend their distribution, and as multinational brewing companies are increasingly in the business of buying and operating craft breweries, competition for resources and market share has escalated to the point where Portland's craft brewers are beginning to question whether a culture of sharing is really in their best interest. While collaboration remains a key feature of the city's brewing sector for now, whether and how collaboration survives under changing economic circumstances will be a key question for future research on the craft brewing sector.

5.1.2 Manufacturing Work

Chapter 3 develops the argument that the rise of craft production in the contemporary period has altered the perception of manufacturing work by demonstrating how craft brewing work in Portland has been glamourized to the point that the city's craft brewers enjoy a quasi-celebrity status. I argue that this cachet is largely a result of hype surrounding the industry and that this newfound attention has amplified the long-standing romanticism surrounding craft production (see Krugh 2014). Craft has a long history of being viewed as grounding workers in a tangible reality, connecting them to their labour, and offering a means of creative expression. However, as Chapter 3 reveals, the lived experiences of craft brewers show a different reality. Indeed, while Portland's craft brewers express a genuine passion for their work, they also describe working conditions fraught with precariousness. Brewers emphasize the highly physical and often dangerous nature of their work. They describe having to work long hours for relatively low

pay. Moreover, despite the celebration of creative aspects of the sector, like other craft sectors, craft brewing still retains significant connections to traditional manufacturing (see Carr and Gibson 2016). As a result, brewers also spend much of their day working on 'uncreative' production tasks. In addition, brewers reported feeling constrained in their creativity due to features of brewery size and business model, as well as ownership decisions.

Chapter 3 also highlights the effects of notoriety on individuals and working conditions in Portland's craft brewing sector. Here, I argue that the glamourization of craft brewing work plays a role in exacerbating conditions of precariousness. In particular, I argue that the glamourization of craft brewing work has increased competition for brewing positions, which has put a premium on work experience and education. Brewery owners are inundated with resumes, many of which come from people who have left jobs in other sectors (see also Thurnell-Read 2014). In this way, the cachet attached to craft brewing work is raising entrance barriers and is driving wages down. Interestingly, the newfound glamour attached to brewing work has not replaced or erased the historic association of brewing with unskilled, manufacturing work. Instead, it has exacerbated this association, helping to keep wages low by signaling to owners that workers are interchangeable and are willing to sacrifice pay in order to work in a 'cool' industry with potential for creative expression. As a result, aspiring craft brewers spend significant resources acquiring the requisite education and seeking experience where they can, often through unpaid work in breweries.

5.1.3 New Workspaces

Chapter 4 explores the development of new hybrid cultural / industrial workspaces under the 'third wave' craft revival. In particular, it highlights the spatial and locational requirements of craft brewers, which include material factors such as affordable industrial space and particular building typologies (notably, high ceiling heights and large floorplates), as well as cultural factors. As craft brewing combines manufacturing and cultural production, craft breweries are characterized by a new form of workspace that interweaves production and consumption in unique ways. Craft breweries in Portland are typically designed to showcase the localness and authenticity of production, cultural traits that are increasingly valued by consumers and used to perform class distinction (Zukin 2008; Luckman 2015; Bourdieu 1984). As a result, these hybrid workspaces also represent new spaces of elite consumption. Consumers are invited to experience production through the co-location of retail and production spaces and the removal of barriers

between the two functions. I find that this practice facilitates community building through the production of shared cultural values and plays an important role in processes of creativity and innovation. Interviewees view on-site retail spaces as valuable test kitchens for new and experimental products as they allow for immediate feedback and reduce costs associated with creative experimentation by eliminating the need to package new products.

Chapter 4 also considers the practical implications of the rise of this new form of workspace for urban policy by considering the relationship between craft breweries and land use policy in Portland's Central Eastside Industrial District (CEID). Over the past several decades, the CEID has been subject to both industrial preservation policies, as well as significant cultural-economic redevelopment schemes, as the City of Portland attempts to create a unique industrial / creative / residential milieu in the district. On the one hand, I find that craft breweries have been a key part of this strategy, playing a role in the production of new landscapes of consumption and also benefitting from the enhanced accessibility and attractiveness of the district that cultural-economic redevelopment schemes have brought. However, I also identify threats to craft breweries associated with new land uses in the district. Like other manufacturing businesses, real estate speculation is putting displacement pressure on craft breweries, while transportation initiatives and new development have complicated freight movement by creating parking problems, traffic congestion, and maneuverability issues. As a result, the future of craft breweries in the district remains uncertain, and the CEID will be a key case to watch for researchers and policy professionals interested in the interplay of land use policy and contemporary craft manufacturing.

5.2 Contributions and Implications

This dissertation offers several key contributions to the literature on contemporary craft economies. Overall, the dissertation offers a view of craft production in the 'third wave' based in critical social science, rather than emerging from the craft movement itself. In doing so, it makes an argument for the recognition of the distinct geographies associated with contemporary craft production, notably: spatial agglomeration and local embeddedness within advanced urban economies, an altered perception of manufacturing work, and the emergence of new hybrid industrial/cultural workspaces (see also Fox Miller 2017).

Chapter 2 adds to these overall contributions by responding to several recent calls for research that situates the emergence of contemporary craft manufacturing in historical context (Gibson 2016; Patchett 2017; Gibson and Warren 2018). To date, research on contemporary craft production has largely addressed contemporary issues, with very little attention paid to the rise of craft clusters in particular locales or to the transmission of craft practice over time. In particular, Chapter 2 responds to these calls by contributing to emerging frameworks for understanding the evolution of contemporary geographies of craft production. Here, I combine a focus on legacies of labour process and the materiality of production advanced by Chris Gibson and colleagues (Gibson 2016; Gibson and Warren 2018), with a focus on local institutional inheritances as advanced by evolutionary economic geography approaches (Massey 1984; Saxenian 1994; Amin 1999; Mommaas 2004; Martin and Sunley 2006; MacKinnon et al. 2009; Leslie and Rantisi 2011; Oosterlynck 2012; Hassink et al. 2014), as a means of understanding the path- and place-dependent nature of the emergence of contemporary craft manufacturing sectors.

Chapter 2 also builds on Gibson's (2016; Gibson and Warren 2018) emphasis on the role of the material basis of production in the rise of contemporary craft manufacturing sectors by foregrounding the role of industrial co-evolution between craft brewing and hops growing in the development of Portland's craft brewing cluster. As such, I argue that the material basis of production matters not only as a place-specific inheritance that can be enlisted as a key resource in the emergence of contemporary craft production, but also as a critical co-evolving component in the evolution of contemporary craft economies. By highlighting processes of industrial co-evolution, I also contribute to the relatively limited literature on the subject in economic geography (see Schamp 2011).

Chapter 2 also focuses on processes of institutional co-evolution, and the role of purposive action in the institutionalization of an emergent craft sector. In doing so, I argue that while institutional structures may create conditions favorable to the emergence of contemporary craft production clusters, their success depends on the ability to develop critical infrastructure and institutional arrangements that support their ongoing function as an environment of creativity and innovation. This argument follows the work of Mommaas (2004) and Leslie and Rantisi (2011), who argue that processes of ongoing institutionalization are critical to the success of creative industry clusters. Chapter 2 contributes to these arguments by demonstrating how such processes are also crucial to the success of emergent craft production clusters, which, although related to the

creative industries, remain distinct based on their connections to manual production (Carr and Gibson 2016; Gibson 2016).

Chapter 3 provides further contributions to strands of contemporary craft literature that consider the relationship between craft production, the creative industries, and traditional manufacturing sectors. While much of the existing work in this vein has emphasized a shared importance of aesthetic, cultural, and design features in craft and creative industry production systems, and a collective experience of precarious working conditions, I argue for the glamourization of work as an additional point of intersection between craft manufacturing and the creative industries. This characteristic has been noted as a feature of work in the creative industries (e.g. Neff et al. 2005), but has received little attention among scholars of contemporary craft production. In addition, Chapter 3 contrasts the glamourous image of craft work with working conditions and the embodied experiences of craft workers, documenting the ways in which it can be both precarious and 'uncreative' due to its continued connections to manual production. In this way, I follow other scholars of contemporary craft production who have questioned the transformative potential of 'third wave' craft production by considering the ideal of craft work in relation to the lived experiences of work in the craft brewing sector (see Dawkins 2011; Jakob 2013; Luckman 2015). While it is important to recognize the potential role of craft in the fight for 'good' work, we must also attend to the more negative affective dimensions of craft work, such as fear, anxiety, and exhaustion (Hughes 2012; Luckman 2012; 2015). In this regard, my findings echo Ross's (2004) caution that, while craft producers are not "factory wageworkers," they are not necessarily immune to exploitative working conditions (p. 216).

Chapter 3 also considers the effects of glamourization on working conditions and on the embodied experiences of craft workers. While precariousness has been a well-documented feature of contemporary craft work, I question whether and how precarious conditions are affected by the culture of 'cool' that surrounds craft work in the contemporary period. Rather than elevating the status of craft brewing, I argue that the cachet attached to this form of work has actually served to reinforce historic associations between manufacturing and unskilled manual labour, and between craft production and amateurism, by encouraging a view that workers are unskilled, easily replaceable, and are willing to sacrifice pay for a chance to work in a 'cool' industry. As such, Chapter 3 contributes to ongoing theorizations of precariousness in craft manufacturing work by demonstrating one of the ways in which it is produced and sustained in contemporary craft manufacturing sectors.

While outside the scope of this study, Chapter 3 also hints at potential divisions between and among craft brewers. Gender, race, and ethnicity shape individual career trajectories and have been argued to be significant sources of division among craft and creative workers (Hughes 2012; McRobbie 2016). My findings substantiate these arguments, indicating that the relationship between precarious working conditions and the celebrated nature of craft brewing work varies based on gender and race. Female interviewees and interviewees of colour noted a level of discrimination based on the notion that they 'don't belong' in the industry. Female brewery workers, in particular, recounted instances of discrimination based on assumptions that they did not possess the physical strength to complete the work, or that they did not have the requisite knowledgeable about beer.

Finally, this dissertation responds to a need to consider the relationship between 'third wave' craft production and manufacturing industries, and the implications of this relationship for urban policy (see Pratt 2008; O'Connor and Gu 2014; Grodach et al. 2017). In particular, Chapter 4 highlights the case of craft brewing, as a craft manufacturing industry that combines creative production with traditional manufacturing, uncovering the spatial and locational requirements of the sector and their intersection with land use policy in Portland's CEID. In doing so, this dissertation substantiates and extends arguments within the literature on craft, as well as broader literature in urban planning, regarding the importance of preserving industrial land and considering the productive needs of small-scale craft producers within policy discourses (see Hughes 2012; Grodach et al. 2017; Leigh and Hoelzel 2012). I argue that urban policy must reconsider the role of craft manufacturing in economic development, recognizing its contributions beyond neighbourhood gentrification and tourism. The case of the craft brewing cluster in the CEID shows how retaining industrial zoning alone may not be enough to inhibit industrial displacement as well as how cultural-economic redevelopment schemes can both benefit and threaten craft manufacturing. As a result, land use policies designed to accommodate and encourage contemporary craft manufacturing need to go beyond industrial preservation, recognizing and creatively facilitating the unique ways in which craft manufacturing economies marry industrial, cultural, and commercial uses. In this regard, one potentially fruitful policy development could be to allow retail and office uses contingent upon the presence, and relative dominance in terms of square footage, of a productive use such as manufacturing or warehousing. This would limit the overall development of office and retail uses and significantly limit commercial gentrification processes that lead to the displacement of production.

5.3 Future Research

While my research offers insight into the unique geographies of contemporary craft manufacturing sectors, it is important to consider the limited scope of analysis to one particular craft manufacturing sector in one city when considering the transferability of the findings. In order to enhance our understanding of the geographies of emerging craft manufacturing sectors, there is a need for future work focused on additional sectors in additional locations. There is, for example, a particular need for more policy-focused research that considers the interplay of craft manufacturing and land use and economic development policy in rural and small-town settings. This is particularly the case for research focused on the craft brewing sector, as craft breweries are increasingly locating in suburban and rural locations where they are being credited with revitalizing declining main streets and bringing tourism to new locations (see also McLaughlin et al. 2014). There is also significant potential to expand the research horizons beyond the English-speaking countries of the global North. Comparative research could also be a fruitful addition here, and one that could potentially contribute to emerging frameworks for understanding the path- and place-dependent nature of the evolution of craft manufacturing (Gibson 2016; Gibson and Warren 2018; Chapter 2). It would be interesting, for example, to investigate whether and how material and institutional factors have mattered across cases. Questions of time and scale will make interesting additions to comparative research agendas as development paths are neither linear nor fixed but are subject to periodic ruptures by both exogenous and endogenous forces. Escalating competition in the brewing industry, for example, raises questions regarding future patterns of growth and development in the craft brewing sector and suggests the potential for comparing the experiences of early entrants to those of latecomers. The growth of the sector, and of the scale of production in individual breweries within the sector, raises further questions regarding the nature and stability of craft as a mode of production. As craft breweries grow they may eventually exceed the definitional limits of craft beer. What happens to these breweries in the eyes of consumers? Are they able to retain a sense of localness and authenticity in production or do they become lumped in with the faceless mass production of multinational brewing companies?

My dissertation also suggests several avenues for future research specific to the craft brewing sector. Work, in particular, remains a key topic of exploration for studies of craft brewing as there is currently a dearth of research on the subject. There is room, for example, for additional research that compares work in the craft brewing sector with that in the multinational brewing

sector, particularly surrounding questions of balancing opportunities for autonomy and creativity with living wages, safety measures, and health benefits. Such comparative research could also consider differing experience of work among craft brewers in different locations. As discussed above, Chapter 3 indicates a need for additional research that explores the gendered and racialized nature of work in the craft brewing sector. In particular, there is significant opportunity to explore divisions among workers based on race and gender in more detail, as well as the strategies that workers employ to navigate careers in a white / male-dominated industry. Chapter 3 also brings up questions of collective organizing and unionization in the craft brewing sector. Although Portland's craft breweries are not unionized and there have yet to be any attempts to do so, craft breweries elsewhere have fostered unionization movements with varying degrees of success (see McIntosh 2011; Sinclair 2014; Zussman 2016). Future research could investigate these movements, their underpinnings, and the reasons for and against their varying degrees of success. Moreover, attention should continue to be paid to the Portland context in this regard, as several interviewees reported unionization as a 'low-level' topic of discussion amongst the city's brewers.

Questions also arise from Chapter 3 regarding the aesthetic labour of craft brewers given their newfound celebrity status. Aesthetic labour, here, refers to the embodied practices that workers perform in order to 'stand out' in the work environment, and recognizes the ways in which workers' bodies are harnessed for the purposes of capital accumulation (see Harvey 1998; Witz et al. 2003; Dean 2005; Entwistle and Wissinger 2006). Through their attendance at festivals and events, craft brewers are increasingly being recruited to perform aesthetic labour in service of their brands. There is significant room for additional research here that explores the nature of aesthetic labour performed by craft brewers, the ways in which that labour is or is not being recognized and compensated, and, as a result, its contributions to the precarization of work in the sector.

Finally, my findings indicate a need to research that considers the ways in which craft brewers are seeing through the 'cool' image of their industry, and how this is leading to the selection of alternative career paths. For example, I interviewed several former craft brewers who had left the industry in order to pursue careers in related industries such as equipment manufacturing and malting. What are the factors motivating these choices? Is it solely an issue of compensation and benefits or are there additional motivations? Do people regret leaving craft brewing and, if so, why? Moreover, are people who had left past careers in professional industries returning to those

industries as a result of precarious conditions and increasing competition in the craft brewing industry?

Moving beyond the realm of work, I see a need for additional research focused on the production of hybrid cultural / industrial workspaces in the craft brewing sector and, in particular, the ways that these spaces function. While Chapter 4 indicates their function as spaces that foster co-development practices, future research could investigate additional ways in which the unique materiality of the craft workspace plays a role in creative processes. Taking inspiration from research on materiality and creative production, for example, future research could explore whether and how workspace design affects particular qualities in the final product, and the ways in which workspaces provide a source of creative inspiration in and of themselves (see Molotch 2003; Gibson 2005; Rantisi and Leslie 2010). Future research on workspaces could also interrogate the elite nature of the consumption spaces produced, considering the role of particular aesthetic tropes and imagery in the producing spaces of class distinction. Such studies could also connect to questions of the ongoing masculinity associated with beer production and consumption, investigating the ways in which these new hybrid workspaces reflect and perpetuate associations between beer and masculinity and valorize traditional male industrial aesthetics.

Finally, focusing specifically on the case of the craft brewing sector in Portland, there is a need for future research that considers the influence of Oregon's wine industry on the emergence of craft brewing. Such research could explore in greater depth the apparent mobility of labour and capital between the two sectors (see Chapter 2), as well as whether the experience of the wine industry informed the later development of the craft brewing sector in ways other than providing a template for legislative changes that enabled the proliferation of brewpubs. In addition, there is a need for additional research that explores connections between Portland's craft brewing sector and aspects of the city's broader artisanal economy (Heying 2010). Building on arguments regarding the role of density and diversity in fostering creativity (see Stolarick and Florida 2006; Rantisi and Leslie 2010), research in this vein could consider whether and how the presence of other craft sectors provides a source of creative inspiration or knowledge for craft brewers. Interviewees, for example, noted several examples of using other artisanal food products as ingredients in beer production (e.g. locally-roasted coffee), as well as of other artisanal sectors using craft beer as an ingredient in their production processes (ice cream being a key example here). Are these examples isolated instances of creative expression? Or, do they reflect deeper

patterns of spill-across effects between interrelated craft sectors? Moreover, such research agendas could enlist the concept of 'path interdependence' (Martin and Sunley 2006) to explore whether and how the trajectories of Portland's craft brewing sector and aspects of the city's broader artisanal economy may be mutually reinforcing.

5.4 Concluding Thoughts

Echoing previous eras of craft revival, craft manufacturing in the 'third wave' is a site of tension and contradiction. While the political imaginary of contemporary craft production sees localized, small-scale production as a less environmentally damaging and more socially just alternative to mass production and mass consumption, a critical reading of the geographies of craft brewing reveals a sector intimately tied to the contemporary cognitive-cultural moment of capitalism, where workers trade a chance for passion at work and meaningful labour for low pay, long hours, and dangerous working conditions, and which is dismissed by policy-makers as anything more than a prop for gentrification, tourism, and neighbourhood branding. Yet, while we must be cautious of the tendency to see utopia in craft, we must also not be too quick to dismiss the transformative potential of craft. While craft may be the domain of privileged consumers and producers, it also highlights legitimate concerns regarding the nature of 'good' work and ethical consumption, and has begun to produce subjects with more radical and revolutionary intentions. Interviewees expressed a genuine passion for their work and a commitment to the sector that is beginning to transform prevailing views of craft manufacturing sectors as being of little relevance to local economies. By placing renewed value on skilled labour and localized production, craft manufacturing in the 'third wave' may yet offer opportunities for critically reflexive consumption, for resilient regional economies, and for creative and autonomous work for more than an elite few. The challenge will be to overcome the 'institutionalized individualization' present in contemporary craft industries, which enforces a sense of personalized responsibility for one's professional success, and to create new forms of social protection for craft workers (Beck and Beck-Gernsheim 2002; Luckman 2015). In this sense, the collaborative culture of Portland's craft brewing industry represents a potentially potent environment through which to cultivate a sense of collective identity and shared experience. In addition, cities and regions will have to move beyond policy narratives that reduce craft

production to a means of place-branding and instead recognize the inherent economic value of craft manufacturing sectors by promoting policies that foster local production capacity.

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