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Questioning Cultural Narratives of Economic Development – An Investigation of Kitchener-Waterloo

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Abstract (ca. 150 words). This paper investigates the relationship between culture and economy and scrutinizes cultural narratives of economic development in Kitchener-Waterloo, Southern Ontario. It argues for the need to carefully conceptualize and study the link between culture and economic development to avoid boosting deterministic stereotypes. In the case of Kitchener-Waterloo, a notable hub of high-technology firms and technology development, a link is frequently drawn between the German community and culture and the region's economic success. A social capital analysis however reveals that the German ethnic community neither has the strong professional internal ties nor the external social ties to other regional communities that could constitute a lead role in economic development. Rather, the legacy of Kitchener-Waterloo's ethnic German population has been absorbed into the region's self-image and creates a feeling of belonging and common reference points that support the overall social and economic development of the region.

Keywords: Cultural narrative; Economic development; German ethnic community; Kitchener-Waterloo; social capital

1. Introduction

Kitchener-Waterloo is held up in both the popular press (Gillmore, 2012; McQueen, 2010) and academic literature (Bramwell & Wolfe, 2008; Colapinto, 2007; Doutriaux, 2003; Parker, 2001; Spigel, 2017b) as one of Canada's most innovative regions. The Kitchener-Waterloo region with a population of 500,000 people, located about 115 kilometers west of Toronto, is home to a large number of technology startups, satellite offices of major international firms, and headquarters of well-known technology firms such as the smartphone maker Blackberry (formerly known as Research in Motion) and e-learning firm Desire2Learn. The region has become a hub of information technology, knowledge-intensive services, and advanced manufacturing industries in Canada with more than 1,000 technology-related firms employing over 30,000 workers (Communitech, 2018) and is home of the University of Waterloo, a leading university for engineering and computer science research and entrepreneurial spinouts (Bathelt, Kogler, & Munro, 2010; Kenny & Patton, 2011).

Both academic studies and journalistic accounts have often suggested that the historical impact of German and Mennonite settlers has been a crucial influence, helping to create an entrepreneurial, innovative, and cooperative society (Bramwell, Nelles, & Wolfe, 2004; Rutherford, 2006). As pointed out by Munro and Bathelt (2014), community leaders, policy makers, and academics frequently draw a direct connection between the region's ethnic history and its contemporary high levels of entrepreneurship and innovativeness. For example, a newspaper profile of the city's growing technology economy connected its present day success with the region's German and Mennonite founders, who "...arrived with a multitude of skills and a spirit of entrepreneurship" (Waldie, 2012), while another argued that "[o]ne essential ingredient lies beneath Waterloo Region's historic ability to shrug off economic shocks and advance to new and leading-edge activities was 'culture'. The building blocks were laid by hard-working Mennonites who flooded into this part of Southwestern Ontario in the 1800s and were followed by successive waves of immigrants from Germany and elsewhere who embraced change" (Kennan, Pitts, & Scofield, 2006). However, neither academic studies nor popular accounts have rigorously examined whether the narrative associated with 'German culture' indeed influences or shapes economic development today. If this was the case we would expect that the German ethnic community within the region has developed specific forms of social capital that stimulate and guide regional economic development. Such a lead role in the regional economy would require that members are closely linked within and beyond the German ethnic community, engaging others in the region in joint projects and spreading best practices. In terms

of social capital, we would thus expect to find substantial professional (bonding) social ties within the community as well as (bridging) ties with other regional communities. A recent study of Spigel (2017a) suggests in contrast that the region's culture may be more closely linked with recent developments like the creation of the University of Waterloo than with the ethnic background and culture of its business community.

Using this debate as a starting point, this paper emphasizes that connections between culture and economic structure are not automatic and that it is necessary to critically examine such cultural narratives rather than assuming the existence of causal connections. While the analysis presented in this paper is related to the German ethnic community and social ties in the Kitchener-Waterloo region, it speaks to the broader debate about the connection between regional culture, social capital, and economic development. Linking a region's ethnic-cultural background to its economic structure lends itself to deterministic explanations and an oversimplification of the connections between culture and economy. Such explanations are becoming more problematic with the rise of research on topics such as entrepreneurial ecosystems, which deal with preexisting cultural structures as a crucial potential source of regional competitive advantage.

The goal of this paper is to investigate this link and generate empirical evidence regarding the role of German ethnic ties and related social networks in Kitchener-Waterloo's economic development. Based on both an analysis of the discourse surrounding the region's economic growth and the nature of social capital ties that have developed in the ethnic German community, we conclude that the region's economic development cannot be viewed as a linear path from its early German-speaking population to the present state as a center of innovation and entrepreneurship in Canada. While there is no doubt that the traditions of Mennonite settlers and German immigrants have had an important impact on the region's social and cultural landscape, it is less clear that this has been a factor in the development of today's technology-intensive industries. This paper argues that the region's economy should not be viewed as being directly related to its German heritage, but rather that its link to German culture has helped create a regional context and discourse that encourages the self-image and mental models supporting collective confidence and entrepreneurialism in the region. In other words, the German cultural ties are not responsible for the region's technology economy nor is there a direct connection between its early German-founded industrial economy and today's economic performance. Instead, the real and imagined legacy of ethnic German population have been

absorbed into Kitchener-Waterloo's self-image and creates a feeling of belonging and common reference points that support the overall development of the region.

This paper is organized as follows: section 2 discusses the role of culture, ethnicity, and social capital in regional economic development and develops the goals of this study, while section 3 applies this context to the Kitchener-Waterloo region, its early and contemporary economic development, and the discourse about the impact of the German culture. Section 4 presents the results of our study regarding social capital ties in the region's German ethnic community based on a quantitative social network survey and section 5 discusses the findings and limitations of this study. Section 6 concludes that care needs to be exercised when drawing direct connections between culture, social capital, and economic development. However, we argue that heritage can be utilized in regional economic development strategies that target 'place branding'.

2. Culture, Ethnicity, and Social Capital in Regional Economies

This section discusses the role of culture, ethnicity, and social capital in economic context to establish propositions about the required structure of social ties that would justify a cultural narrative of economic development. Research on associations between ethnic or cultural groups and economic development have a long but problematic history with roots in the scientific racism of 19th century Social Darwinism. Max Weber's (1930) 'The Protestant Ethic and the Spirit of Capitalism' was a crucial early contribution to this literature, which sought to link the religious beliefs of Northern European Protestantism to the development of Western capitalist societies. Still today, related work triggers a substantial amount of research about experiences of immigrant and ethnic entrepreneurs. The literature has identified both how these groups have used entrepreneurship to overcome barriers in traditional labor markets and which unique aspects of the entrepreneurship process are characteristic for different ethnic groups (Zhou, 2004). This work frequently emphasizes the importance of social capital and trust in immigrant communities as a key element of entrepreneurial development (Saxenian, 2006). This form of entrepreneurship is enabled by dense networks and high levels of social capital that are often found within these communities, supporting high levels of trust between community members, as well as creating the threat of social exclusion for malingerers (Portes, 1998). This, for instance, allows entrepreneurs to raise capital from outside of the formal banking system (Kwon, Heflin, & Ruef, 2013) and to use family or community members as employees and partners (Sanders & Nee, 1996) in a way that members outside such tight-knit ethnic groups cannot.

Following Coleman (1988) and Lin (2001), social capital is generally understood at the micro level as the overall resources and trust contained within social networks, whereas Putnam's (1993) conception of social capital focuses on the level of trust within a society at a macro level. In both perspectives, social capital is seen as an attribute of social networks and community norms that can create positive externalities such as facilitating access to financial capital, markets, or knowledge (Anderson & Jack, 2002; Malecki, 2012). This trust enables cooperation between organizations and groups that in turn contribute to innovation, entrepreneurship, and growth (Wolfe, 2002). The role of trust and social capital has been viewed as being particularly important for building technology-based entrepreneurial economies, such as the strong trust that Saxenian (1994) noted between entrepreneurs in early Silicon Valley or James (2005) in his study of Salt Lake City's technology economy.

We can distinguish two different forms of social capital: bonding and bridging capital. Bonding social capital enhances trust and cooperation within a densely networked group or community. It creates high levels of trust within groups, which allows actors to share valuable resources with little fear of treachery. This enables these groups to create thriving internal economies, particularly in markets characterized by high risk and uncertainty (Henn, 2012). Bridging social capital operates across groups or communities. It connects otherwise disconnected groups and allows the sharing of novel information and resources between these groups (Burt, 1992; 2004). Both forms of social capital are key to the successful economic development not only of social groups, but also of regional entities, because they simultaneously build the capacity for collective action, reduce the transaction and monitoring costs for cooperation, and allow for the free flow of ideas, knowledge, and resources between members of diverse groups and affiliations (Bathelt & Glücker, 2011). While studies have noted that too much bonding social capital can lead to over-embeddedness, when communities become inward looking and avoid collaborations or connections with the outside (Coffé & Geys, 2016), the combination of bonding with bridging social capital can reduce such threats.

When ethnic groups develop high levels of internal social capital both due to their shared linguistic and cultural heritage, it is less likely that they develop strong connections with outside groups (Portes & Sensenbrenner, 1993). Such connections can even outlast the initial societal decimation (Reuf, Aldrich, & Carter, 2003). These types of social-capital rich community relationships are invoked when claims are made about a link between the ethnic or cultural background and economic development of a region, as in the case of Kitchener-Waterloo. Members of these groups are able (or forced) to support each other in order for the group to

succeed, for example through co-employment, providing loans to other members of the community, sharing knowledge about business opportunities and best practices, or providing other types of economic and social support. Thus, bonding social capital provides a way for groups to create internal resources that can help them thrive under otherwise challenging economic and social conditions. Putnam (2000) notes that these groups should transform their internal bonding social capital into bridging social capital that connects them with others in order to achieve stable growth, but such shifts are often challenging (Leonard, 2016).

The role of ethnic groups' internal and external social capital has been extensively studied in entrepreneurship processes (Klyver & Foley, 2012). Such work has generally taken two approaches. The first has focused on immigrant or visible minority entrepreneurs to better understand how they have leveraged social capital within their community to overcome external barriers such as lack of access to finance (Li, Lo, and Oberle, 2014). High levels of social capital within some ethnic groups enable specific business practices such as joint credit pooling, co-ethnic hiring, and mutual support that foster economic growth (Sanders & Nee, 1996; Teixeira, 1998). While these practices are a response to external forces, such as the exclusion of immigrants or minorities from labor markets or the lack of access to credit, they are enabled by high levels of trust within a community rather than specific cultural attributes. For instance, the high levels of social capital within immigrant Korean communities that allow for credit pooling are not the direct result of some specific aspect of Korean culture but a result of exclusion from the traditional banking sector. Patterns in the economic activities and contributions of particular ethnic groups are not necessarily rooted in cultural beliefs but are responses to immediate economic and social pressures, such as the effects of poor employment prospects for recent immigrants (Subedi and Rosenberg, 2015). Thus, high levels of bonding social capital and within-group cooperation can outlast the initial decimation or exclusion that caused it, as Hsu and Saxenian (2000) showed in their study of high-technology migrants in Silicon Valley.

The second approach in related work has been to study differences in rates of entrepreneurship and self-employment between ethnic groups and nationalities (Chand & Ghorbani, 2011). This work has argued that culture plays an important role in determining the propensity of different groups to engage in entrepreneurship, even under similar economic conditions. This work suggests that "culture, in various forms, is ... a moderator of the relationship between contextual factors and entrepreneurial outcomes" (Hayton, George, & Zahra, 2002, p. 45). One of the primary methodologies to study the connections between ethnic or cultural outlooks and

economic activity has been developed in work of Hofstede (2001), who identified large scale patterns in attitudes towards power, risk taking, and collective action. Subsequent research has connected these attributes with the propensity of engage in high-risk startup activity or national levels of innovation and entrepreneurship (Drakopoulou Dodd & Patra, 2002; Shane, 1992; Thomas & Mueller, 2000).

However, such approaches have been the target of sustained critique. Empirically, standardized cultural approaches such those of Hofstede have been challenged for poor methodological foundations that assume relatively small samples of a selected population are representative of the culture of an ethnic group or entire nation (Brewer & Venai, 2014; Klyver & Foley, 2012; McSweeney, 2002). Others have argued that it is exceedingly difficult to precisely delineate cultural or ethnic groups in such standardized form. While studies commonly refer to, for example, 'Asian' or other forms of entrepreneurship, this homogenized grouping together of different nationalities, ethnicities, and personal outlooks does not hold at the micro level in studies of regions and cities (Basu & Altinay, 2002; Basu & Werbner, 2001). In macro analyses, researchers have tended to overestimate intra-group cohesion when in reality individuals' connections often go beyond their individual cultural group (Hsu & Saxenian, 2000).

Yet, to support broad statements such as those by Landes (1999 p. 516), who claims that "[i]f we learn anything from the history of economic development, it is that culture matters", requires the application of methods that can be used at a broad scale and in more standardized ways. It has been difficult to empirically demonstrate the impact of culture, ethnic or otherwise, on regional economic growth (Glaeser & Kerr, 2009). Wilkinson (1996) argues, associating an ethnic group with a dominant form of economic activity is often a post-hoc rationalization of current institutional structures. Attempts to connect a particular culture or ethnicity with certain business practices can easily turn into deterministic arguments that leave little room for personal agency or evolutionary change. Yet, in public debates, such connections are often drawn and cultural narratives employed, as in the case of Kitchener-Waterloo.

In sum, even though prior research has provided important explanations linking ethnic groups and social capital with economic development, it also suggests that we need to exercise care in developing arguments that could easily become deterministic and misleading, as a study focus on ethnicity and culture may hide other crucial influences and relationships that shape the economy. This is especially important in a context such as that of the Kitchener-Waterloo region that is proud of its ethnic cultural influences which shaped its historical development and have become a common point of reference. Such commonalities have helped create a community

vision based around hard work, cooperation, and entrepreneurship. In such a context, the public discourse all too easily and willingly exploits the notion of ethnic culture to explain its current economic success – especially as it becomes difficult to pinpoint exactly the precise sources of this success. Connecting the cultural attributes of a particular group (e.g. their hardworking, collaborative culture) with a region’s current economic prospects has emerged as an important tool in regional place branding. Regions use such discourses to differentiate themselves in order to attract inward investment and motivate internal cohesion (Dinnie, 2011). However, as regions increasingly turn to such branding methods it is important to scrutinize the nature of connections between historic ethnic cultural influences and present-day economic realities.

Based on the above discussion, this study aims to critically investigate claims of a direct link between and impact of the culture associated with the German ethnic community and the region’s contemporary entrepreneurial technology economy. The narrative about the impact of Germanic and Mennonite culture on the region’s technology ecosystem presumes that these groups have both strong bonding capital that helps them form a visible economic community within the region and strong bridging capital necessary for them to have an impact on other regional communities and take a lead role in the regional economy. There are two aspects of the German community’s social capital structure that would support the proclaimed cultural narrative of economic development in Kitchener-Waterloo: first, we would expect that the German community is characterized by strong professional bonding relations that link its community members with each other, generate economic advantages, legitimate the community’s position with the region, and provide the basis for the reproduction of the community. Second, we would expect that strong professional bridging relations can be identified through which members of the German community can access outside resources, generate growth triggers, and engage others in joint action.

3. Kitchener-Waterloo’s Technology Economy

The Kitchener-Waterloo region has received substantial attention from scholars due to its successful transition from an economy based on traditional manufacturing industries to one that is increasingly led by technology-based growth around information technologies and knowledge-based industries. This development has not simply been confined to high-technology sectors. The ability of manufacturing firms to adopt knowledge-intensive computer systems and processes has helped the region maintain the second largest share of manufacturing employment of any Canadian metropolitan area, with 19 percent of its labor force in the manufacturing sector in 2014 (second only to Windsor, Ontario), compared to an average of 9

percent for the rest of Canada (Statistics Canada, 2015). More recently, the local, provincial, and federal governments have decided to invest into a ‘Toronto-Waterloo Regional Corridor’ that aims to build a cohesive entrepreneurial ecosystem between the two city regions, building on Waterloo’s internationally recognized entrepreneurial profile (Klugman & Lynch, 2015). Kitchener-Waterloo’s economic success is often viewed in connection with a specific regional entrepreneurial culture (Spigel, 2017b) that has triggered continuous start-up processes in technology-related industries (Bathelt, Kogler, & Munro, 2010; Meyer, 2006), as well as ongoing innovation and diversification processes in traditional manufacturing industries (Bathelt, Munro, & Spigel, 2013). The dominant public discourse in the region links this structure to the region’s German culture and heritage. Yet, as we will argue, the current success of the region’s economy is the result of complex economic and social processes that have evolved over time, rather than the consequence of the business practices and social networks related to and lead by a single ethnic group.

3.1 Early Economic and Social Development

Both policymakers and researchers have tended to highlight the region’s cultural history of German and Mennonite immigrants in sparking the region’s industrial development. Though originally Iroquois land, the region was settled by Mennonite farmers in the early 19th century, who founded the farming communities of Berlin (renamed Kitchener in 1916), Waterloo, and Cambridge. The Mennonite’s German language and culture made the region attractive to new migrants from Germany throughout the 19th and 20th centuries, who found an existing ethnic service economy and brought with them the trades and skills they developed in rapidly industrializing Germany. By the mid-19th century, the region was home to many factories and sawmills founded by German immigrants. Indeed, of the 102 manufacturing firms created in the region between 1850 and 1915, one quarter were founded by German migrants or their children (Bloomfield, 1987a).

At the start of the 20th century the Kitchener-Waterloo region began to specialize in value-added industrial manufacturing, such as cabinetry and shoe making. Importantly, the region remained a diversified center of industrial entrepreneurship rather than becoming dependent on one dominant employer or industry. This was the result of both concerted efforts by municipal leaders to attract and retain businesses as well as the continued existence of a strong German community which ensured that German migrants who set up successful businesses stayed in the region rather than moving to more Anglicized cities (Bloomfield, 1987a). In the first half of the 20th century, the Kitchener-Waterloo region emerged as an important industrial center. In

1916, more than 60 percent of the region's labor force were employed in manufacturing, the highest rate in Canada at that time (Bloomfield, 1987a) and, by the 1930s, the region's rubber and automobile factories earned it the moniker of 'Canada's Akron' (Bloomfield, 1987b).

Kitchener-Waterloo's skilled labor force attracted further factories and helped build a strong concentration of metal working and food processing firms still visible today. By the 1950s, the wider region had become one of the leading regions for auto parts manufacturing and helped feed the growing automotive assembly industry throughout Southern Ontario and the US Northeast. While the region always had a large undercurrent of locally-founded firms, this period saw the rise of branch plants from US manufactures looking to access the region's highly-skilled but relatively low-cost labor force (Walker, 1987). In retrospective, this process began to reduce the influence of the German industrial community on Kitchener-Waterloo's growth trajectory.

The expanding industrial economy guided the establishment of the University of Waterloo in 1957. The university was conceived of as a means to supply local industrial firms with skilled engineers and scientists (Bramwell & Wolfe, 2008; Nelles, Bramwell, & Wolfe, 2005). The strong connections between the university's founding Board of Governors and local industrialists helped shape the university's organizational culture, creating an applied industry-focused outlook that still exists today (Axelrod, 1982). Early faculty had an industrial background and concentrated their research on the applied needs of local firms, helping them solve existing problems and studying the application of new technologies in local industrial contexts (Eastwood, 1987).

Over time, the university had a profound impact on Kitchener-Waterloo's economic trajectory. Both direct spinouts by faculty and researchers and indirect spinouts (firms started by alumni or based on university competencies) have become significant employers in the city. Satellite offices of international corporations such as Google and Microsoft have moved to the region due to the high quality of graduates, and many students absorb the university's 'entrepreneurial spirit', encouraging them to start or work at new ventures, as well as supporting knowledge sharing and cooperation in the region (Bathelt, Kogler, & Munro, 2010). This ethos of entrepreneurship and cooperation is supported by local economic development organizations such as Communitech and Canada's Technology Triangle (CTT), which host training and networking events, promote the city for inward investment, and help create a cohesive community. While important in the early development stage, German ethnic entrepreneurs and their ventures clearly became less dominant over time as the regional economy was more technology-driven related to the University of Waterloo and its spinoff culture. From this brief

historical overview, it seems plausible to assume that there was a strong historical impact of the German ethnic community on economic development but it is questionable whether such an impact can still be identified today.

3.2. Discourse and Reality of the German Cultural Impact on the Kitchener-Waterloo Economy

As of today, the region's German and Mennonite culture and heritage are still omnipresent in the region's public discourse and its external image. Nelles, Bramwell, and Wolfe (2005, p. 245), for instance, suggest that "many of the firms in [Kitchener-Waterloo] share a common perspective on firm strategy, which along with firm structure, carries the imprint of the German culture dating back to the nineteenth century." Similarly, an article by a local economic development agency claims that the region's "success owes to cultural factors that were coming into play a full century before [the University of Waterloo]" (Reinhart, n.d.). The importance of the region's German and Mennonite culture are frequently cited by local financiers, policy makers, and entrepreneurs as the source of the region's high levels of collaboration and knowledge sharing. It is believed that this cultural heritage has influenced the organizational culture of the firms founded in the region. In discussing the formation of Blackberry, McQueen (2010 p. 274) argues that: "[w]hile neither [former Blackberry co-CEOs] Lazaridis nor Balsillie hail from the Kitchener Waterloo area, they have come under its spell and have created a corporate culture at Research in Motion that matches the area's Mennonite roots." Similarly, an article in the Financial Times touched on this myth by suggesting that "RIM has helped transform Kitchener-Waterloo from a quiet manufacturing centre best known for its Mennonite community and Oktoberfest celebration into a thriving technology cluster" (Simon, 2011). All of this illustrates that the story of the German influence on economic development today is still vibrant and is frequently emphasized in media outlets.

Upon closer inspection, strong connections between the German ethnic community and the region's contemporary economy are not obvious. The traditional discourse that links innovative German-founded and -operated industrial firms to the cooperative and entrepreneurial milieu in the region and its present state as a hub of technological development is questionable. By the end of the Second World War, the ownership structure of Kitchener-Waterloo's industrial firms had already shifted away from the model of small industrial firms owned by German migrants and their decedents towards a Fordist-type system with multiple larger factories and branch plants owned by individuals from outside the region. Many local factories were acquired by Anglo-Canadians from other parts of Ontario and lost their connections with German industrial practices. Weiss (1987, p. 116) speaks of a "declining German influence within the

manufacturing sector since 1945” as a result of these changes. While there are still numerous subsidiaries of German multinational enterprises located in the region today¹, it is questionable whether these are the drivers of the economy and whether the German community’s social capital is strong enough to establish professional bonds both within the community as well as bridges across the region. Such linkages would be necessary to have any significant impact on regional development, as discussed in the previous section.

As shown in Figure 1, the overall proportion of the region’s German population declined precipitously, from 49.6 percent in 1931 to less than 5 percent in 2011. These changes are due both to declining rates of new German migrants into the region after the 1950s and larger shifts in Canadian demographic trends.² This speaks to a declining influence of the local German population on the region’s civic and economic life. Indeed, few of the industrialists who helped draw up ‘The Waterloo Plan’ (the University of Waterloo’s founding documents which specifically laid out the goal to create strong connections between the university’s research activities and local industrial needs) were from the city’s German community, with the majority being Anglo-Canadians linked to larger industrial firms from outside the region (Axelrod, 1982). Thus, the research institutes that today define the region’s high-technology economy, such as the University of Waterloo, were developed with minimal direct input from members of the local German community.

Figure 1 about here

This is not to say that the region does not have a strong and lively German heritage. However, its impact on today’s innovative and entrepreneurial economy appears limited. While not having a direct link to the present economic structure, this heritage may play a role as a catalyst in creating a sense of regional commonality and belonging. The attributes associated with

¹ See the website of the Canadian German Chamber of Industry and Commerce (<http://kanada.ahk.de/en/>).

² Part of this decline can be attributed to changes in statistical and regional delineations. For instance, the fact that changes in how ethnic origins were recorded in 1981 allowed respondents to claim multiple ethnic origins (e.g. German and British) probably resulted in an over-estimation of the decline in the number of residents with German ethnic origin between 1971 and 1981, in addition to a decline in immigration and natural demographic changes. However, the effects of these changes on this analysis can be considered minimal.

historical German and Mennonite groups, such as cooperation, mutual support, and industriousness, are discursively mobilized by industrial associations and support organizations, such as Communitech and CTT, to create a sense of belonging that links together the region's organizations, governments, firms, and community members. Repeating the same story over and over supports spreading and adopting this common vision within the region. This process also provides informal support for the institutional thickness that underlies the region's economic structure. Therefore, even if there is little material connection to support a cultural narrative that links the German ethnic community and its culture with economic development, the belief in the importance of this background may still have an impact and inspire, or at least justify, some level of regional cooperation.

4. Social Capital in Kitchener-Waterloo's Contemporary German Community

While the previous sections have disentangled the discourse that surrounds the connection surrounding the German ethnic community and its culture in Kitchener-Waterloo and the region's innovative and entrepreneurial economic structure, this section aims to investigate these proclaimed linkages in a quantitative way using a form of social capital analysis. More precisely, we present the results of a social capital survey carried out in the region's Germany ethnic community to test some of the assumptions underlying the nature and role of social capital in the community. More precisely, we estimate the amount of internal (bonding) social ties within the German community and of external (bridging) social ties with other regional communities in professional and personal/private contexts. Through this, we aim to draw conclusions whether the German community has the potential to exercise a lead role in regional economic development.

4.1 Motivation and Methods

One possibility to investigate the link between the region's German culture and its economic development is to study how ethnic-cultural resources are used professionally and what the role of social networks or ties within the German community and across other communities in the region is. More precisely, we are interested to specify first whether the German ethnic community relies on internal bonding social capital, second whether members of the German community are able to use their German-based networks to their professional advantage, third whether they transfer social and occupational resources within the German community, and fourth whether they create connections to resources in Kitchener-Waterloo's non-German communities. Since the region's German ethnic community is diffuse and not spatially and

socially concentrated, we designed our study around the region’s German social clubs and related community organizations and associations, which remain an important center of social and cultural activities of this community. The clubs, often associated with immigrants from particular German regions, host social nights and cultural events and collectively organize the region’s annual ‘Oktoberfest’, the largest of its kind in Canada. There are several major German social clubs in the Kitchener-Waterloo area, along with an association of German-Canadian business leaders and an umbrella organization of German clubs which helps coordinate large events. These include the Alpine Club, Concordia Club, Hubertushaus, Schwabenclub, and Transylvania Club (Kitchener-Waterloo Oktoberfest, 2018). The Concordia Club, the largest German social club in the region, also holds a Saturday German Language School. Despite declining membership, the German social clubs remain a focal node of the region’s German community.

To better understand the German community’s social capital, a questionnaire was designed and distributed to community members. To achieve the broadest possible participation, we distributed questionnaires to members of each German social club, to the parents of students at the Concordia Club’s German Language School, to Kitchener-Waterloo-based participants at a regional German choir exhibition held in Kitchener-Waterloo, to the German-Canadian Business Organization in Kitchener, and to members of ‘Treffpunkt’, a sub-organization of the Concordia Club for younger members. In total, 620 questionnaires were distributed to German social club members between 2011 and 2013. From this, 123 completed responses were received, corresponding to a 19.8 percent response rate (Table 1). In addition to the surveys, selected interviews were carried out with key informants to shed further light on the organization of the German social clubs and their role within the community as a basis for the generation of social networks.

Table 1 about here

The German community social network survey contained three components. The first part gathered demographic data about the respondents and their views of the local German community. This included information about age, gender, retirement status, occupation, level of education, income, and the number of years respondents have lived in the Kitchener-Waterloo region. In addition, respondents were asked to answer ‘yes’ or ‘no’ to questions regarding

whether they considered themselves members of the region's German community, whether they believed the region had a strong German community, and whether they ever benefited professionally from their connection with the German community. Tables 2 and 3 provide a demographic overview of the respondents related to these questions. The survey suggests that Kitchener-Waterloo's German community is generally better educated than the general population and more likely to work in white collar and public-sector jobs. Approximately 10 percent of the region's labor force works in manufacturing occupations (Statistics Canada, 2015), compared to 3 percent of the survey population (Table 3). Similarly, 16 percent of survey respondents had management occupations, more than double the regional average of 8 percent (Statistics Canada, 2011). Respondents generally viewed themselves as a member of the German community (83 percent) and believed that there was a strong German community in the region (95 percent). The percentage of respondents who reported benefiting from their social capital in their professional life was lower with 57 percent, but still substantial (Table 2).

Tables 2 and 3 about here

The second and third parts of the survey inquired about the respondents' social capital through resource and position generators containing questions designed to reveal different types of social capital. The resource generator encompassed a series of questions about the social resources a respondent can potentially draw from her or his social networks (van der Gaag and Snyder, 2005). These resources can be categorized as either professional or personal, depending on whether they are useful in helping the respondent's personal or professional life (Table 4). The assumption behind this resource generator is that the greater the number of resources a respondent can mobilize through social networks the higher the level of social capital. Finally, the third part of the survey used a position generator to ask a series of questions regarding whether respondents know someone with a specific occupation within their social networks (Lin, 2001; Lin & Erikson, 2008). Here, the assumption is that the more social contacts respondents have with high-prestige occupations the higher the level of social capital they access. This allowed us not only to estimate the respondent's position in social networks but also to draw inferences regarding the role of social capital within and beyond the German ethnic community. The resource and occupational categories used are listed in Tables 4 and 5.

Tables 4 and 5 about here

For each question in the position and resource generator, respondents were asked (i) whether they know a person with the respective resource or occupation who lives in the Kitchener-Waterloo region, (ii) whether this person is primarily a professional contact or a personal friend, and (iii) whether they consider this person to be a member of the region's German ethnic community. These questions helped us identify whether a respondent relies on social capital, how much rests within the German community, and how much is tied outside the community. The assumption was that if the results indicate that high levels of social capital are derived from German community sources this will suggest the existence of strong bonding social capital within the German ethnic community. Respondents who derive more social capital from other sources accordingly have lower rates of bonding capital, but higher rates of bridging social capital that connects them with a diverse array of social groups in the region. Depending on the respondent's answers to the social capital questions, responses were classified into one of five categories, corresponding to different types of connections they identified: Type 1 respondents do not rely on connections with others to access specific social and occupational resources; Type 2 individuals are linked with professional contacts that are not part of the German community; Type 3 respondents are connected with persons that are both professional contacts, as well as part of the German community; Type 4 individuals have connections with the German community, but these are not professional ones; and Type 5 respondents have social capital connections, but these are neither professional contacts nor with members of the German community. These categories describe the nature of the respondents' social capital and allow us to judge whether they rely on social capital, whether their connections are predominantly based around bonding within the community, or whether they act as bridges to other groups.

4.2 Results

The social capital data collected in our survey suggests that two dominant types of social connections exist inside and outside the German ethnic community in Kitchener-Waterloo. Table 6 reports the aggregate number of connections respondents reported for the 17 social and 11 occupational resources surveyed. Overall, in about one third of cases, respondents did not have access to social and occupational resources through existing network connections (Type 1). In another third of cases, respondents reported that they found their social resources in the German ethnic community but that these ties were not professional in character (Type 4).

The resources were provided by someone they considered to be a personal, rather than professional, connection within the German community. Only a minority of resources (11 percent) were from professional contacts outside the German community (Type 2), 14 percent were from connections that were classified as both professional colleagues and members of the German community (Type 3), and another 11 percent were personal/private contacts that originated outside the local German community (Type 5). Excluding cases where respondents did not have anyone in their network to provide a social or occupational resources (Type 1), the vast majority of resources (two-thirds) were found within the German community (Types 3 and 4), while only one-third were associated with social capital outside the local German ethnic community (Types 2 and 5). This suggests that a large part of the respondents' social capital is drawn from connections within their German-based networks rather than going beyond the community. The social capital structure of survey respondents is dominated by bonding social capital within their co-ethnic German community with significantly lower levels of bridging social capital outside this community. Given the cultural narrative about the role of this community and its culture in regional economic development, we would have expected a larger amount of professional ties both within and beyond the community.

Table 6 about here

We need to be careful though with our judgement, as respondents' aggregate levels of social capital reveal relatively little about the connections between the German ethnic community and Kitchener-Waterloo's innovation economy. A more detailed analysis is necessary that examines the factors contributing to individual levels of bridging and bonding social capital. Multiple regression analysis can provide more insight into the factors influencing the number of personal and professional resources respondents acquired through their German social ties (Types 3 and 4 in Table 6). We were particularly interested whether income, occupational, and educational factors would be positively associated with the use of German-based social networks. Since high income, occupational status, and education levels are characteristics of business managers and professionals in the knowledge-based economy, the reliance of such groups on social capital from within the German ethnic community would suggest a connection between this community and its culture and the region's economic success.

Two sets of control variables were included in the model. These were first general demographic variables such as age, the proportion of respondents' lives spent in the region, and gender. These variables aimed at controlling for the fact that older respondents and those who spent a long time in the region would be expected to have more developed and broader social networks from which they can draw personal and professional resources. If these variables have a positive impact on the dependent variable, it would suggest that German-based networks become tighter over time, rather than opening up. Gender is used as an additional control variable to account for any deviations in the network structure as a result of gender-specific influences. The second set of control variables (including an interaction term) are dummy variables presenting the respondents' beliefs that they have benefited professionally from the local German community and that the region has a strong German community. This controls for respondent's perceptions about the strength and usefulness of the local German ethnic community.

The regression results are presented in Table 7. The results indicate that the proportion of respondents' lives spent in the Kitchener-Waterloo region is a dominant, highly significant variable in influencing whether or not social capital is acquired from German sources. Aside from gender (Model 1), education, income, and occupational prestige (Model 2) did not have a significant impact on the proportion of the respondents' social capital drawn from German sources. Only the proportion of their lives spent in the region was highly significant throughout all models and age was modestly significant. This finding does not change in Model 3. Neither does the belief in professional benefits from the German community nor that there is a strong local German community have a significant effect the use of German social networks. Older respondents and those who spent a large portion of their lives in the region had deeper contacts with the German community in generating social and occupational resources and fewer of their social resources were embedded in non-German contacts. Neither high income, educational level, nor occupational status, or the belief in the strength and potential advantages of the local German ethnic community had a consistently significant impact on whether people acquired social capital through German ethnic ties.

Table 7 about here

The regression models along with the discussions in section 3 suggest that the bulk of the respondents' social capital is bound up within the local German community regardless of occupation or income level – yet, most these ties are not economically motivated. This view is reinforced when examining the use of personal and professional social resources (Table 8). Unsurprisingly, 40 percent of personal social resources (resources used primarily in respondents' private lives) come from German non-professional sources (Type 4). This reflects the importance of personal friends from within the German community in providing resources such as emergency loans or investment advice but do not stimulate economic development. German non-professional connections also provide 27 percent of all professional social resources, the highest of all categories excluding 'no connection' in the corresponding column in Table 8. Friends within the German community thus provide a substantial amount of professional resources and advice. Overall, German contacts provide the majority of all personal and all professional resources (Types 3 and 4). This indicates that respondents tend to draw on social resources from their German contacts. As opposed to this bonding capital, the use of bridging social capital (Type 2) is very limited with 6 percent and 14 percent of the personal and professional resources, respectively, relying on professional non-German connections. This is not the structure of ties we would have expected in a regional economy driven or shaped by the German ethnic community and its culture. To justify such a cultural narrative, we would have expected, at a minimum, strong social ties to other communities through which German ideas or practices or networks could have been extended or linked throughout the Kitchener-Waterloo economy.

Table 8 about here

5. Discussion and Limitations

Leibovitz's (2003 p. 2613) analysis of economic governance structures in the Kitchener-Waterloo region suggests that attention needs to be paid "to the factors that shape the political mobilization of actors into associative institutional structures". The results of the analysis presented in this paper show that, although Mennonite heritage and German immigration have been crucial in the region's development in the past, they cannot be viewed as a strong influence in the region's contemporary economic structure. The results of the social capital survey clearly support this. The data shows strong levels of internal bonding social capital within

the region's German community but only few of these relationships are exploited in professional contexts. Factors such as income, education, or occupation do not have a significant influence on the amount of social capital resources respondents derive from German as opposed to non-German sources. None of the subgroups of German social club members, such as young professions or high-income earners, have significantly higher levels of bridging social capital with non-German contacts than others. If this were the case, it would indicate that a portion of the German community maintains strong personal and professional ties with other regional groups, especially with those involved in the region's technology sector. But what we found is not what would be expected when a strong cultural narrative ties the success of the Kitchener-Waterloo economy to its German community and culture. As our historical overview shows, such a connection may have existed at some point the past. However, if this connection was still strong, we would need to find evidence of strong professional social ties within as well as beyond the German ethnic community – in other words, strong bonding and strong bridging capital within economic contexts should be identifiable. As it stands, the results suggest homogeneously high rates of personal/private, but not professional, bonding social capital within the German community and low levels of, both personal and professional, bridging social capital with the rest of the region. Overall, this casts strong doubts regarding the cultural narrative of economic development in Kitchener-Waterloo.

Yet, this does not imply that the German community is cut off or otherwise disconnected from the wider social and economic spheres of the Kitchener-Waterloo region. The population is in fact very well integrated and most respondents in our survey were either naturalized citizens or first- or second-generation Canadians. There is no evidence of any sort of exclusion. Rather, it appears that the German ethnic community has been very successful at creating high levels of bonding social capital, allowing members to create durable, strong friendship ties to members of the community through which they can access many important resources. However, respondents in our survey did not have strong professional ties to other members of the German community and had few connections with non-German communities in the region. Indeed, non-German professional contacts were the least frequent category of social ties identified. This suggests a dominance of personal/private social ties within the German community and also few professional ties to non-German communities.

These findings indicate that the notion of a German culture of cooperation and trust between firms and industries as an explanation for the region's economic success, in the first place, just a discourse, used to brand the region and generate a narrative that helps create a feeling of

belonging and identity. The data shows that German social capital is dominated by within-group bonding social capital that is mostly personal/private in character. Boundary-spanning bridging ties that cut across other communities and create wider linkages within the regional economy, which would be expected if the ethnic German community would have a strong impact on economic development, were hardly identified. However, this discourse may still be effective as a policy tool. The *idea* of the German and Mennonite culture, rather than the *reality*, has been enrolled to establish an organizing principle for public sector and private sector actors. It is this idea that has helped create the strong sense of community within the region from which a broadly and well-recognized entrepreneurial ecosystem has developed.

There are particularly two limitations to these findings that we need to take into consideration. The first problem we may be faced with is a biased sample. Members of German social clubs are more likely to have stronger internal ties with the German community than residents with a German ethnic background who do not participate in such clubs. However, this does not seem to threaten our findings. Since a mailed social capital survey to the region's residents is impractical, costly and would have a low response rate, German clubs remain the best alternative to access this population. Second, there is no control group against which we can test the distribution of social contacts between co-ethnic ties and ties across ethnic groups. Large-scale social network surveys such as Canada's General Social Survey do not disaggregate social ties by ethnicity, making it difficult to tell if the levels of co-ethnic professional and personal/private ties observed here are significantly higher or lower than in other populations. Nevertheless, survey responses in this study show a clear tendency for personal/private co-ethnic German contacts to be much more widespread than bridging connections, both professional and personal, with other ethnic groups. Since the German population is also not over-represented in the workforce of the region's technology sector, our study suggests that respondents had few ties with this segment of the economy. All of this suggests that discourses of how the ethnic German population and its culture have shaped today's technology economy and entrepreneurial culture in Kitchener-Waterloo cannot be supported by this research. However, as indicated in the conclusion section of this paper, the German community and its cultural heritage play a great role in municipal social life and may continue to be important anchor points for the formulation of future development strategies and policies.

6. Conclusion

A collective story or mythology about a region helps bring a diverse array of actors together in pursuit of a common goal (Staber & Sautter, 2011). The actual reality of such a collective story may be secondary to its discursive importance within the community. While scholars might, for instance, argue that the mythology of Silicon Valley garage startups is incidental compared to the role of the military-industrial complex in sparking the creation of Southern California's technology economy, there can be no doubt that tales of visionary entrepreneurial teams like Bill Hewlett and Dave Packard or Steve Jobs and Steve Wozniak have created a collective mythology around which the region's economy operates. These myths create a narrative about the conditions under which entrepreneurship occurs in these places that help motivate future generations of entrepreneurs. Whereas such mythologies may develop organically in some regions, they are (or need to be) triggered and continuously fed by economic development organizations in other cases as part of larger branding campaigns to attract inward investments and encourage economic cooperation (Harvey, 1989; Kasabov & Sundaram, 2013).

The mythology and discourse surrounding the role of the Mennonite and German communities in Kitchener-Waterloo's innovative economy appears to be an example of this. These groups had a formative impact on the region's early economic history. The Mennonite settlers' German language and culture attracted migrants from Germany, who brought with them advanced industrial skills that helped build the region into a manufacturing hub in the early 20th century. While this created the context for further developments, such as the establishment of the University of Waterloo, there is little evidence of a direct influence of the German community on the recent development of the region's technology sector. Although some members of the German ethnic community have participated in this process, they were not the driving forces – nor were dominant industrial practices, entrepreneurship, or innovation shaped through their influence. The legacy of the Mennonite and German community has long been replaced by local economic development agencies such as Communitech and CTT to encourage cooperation, innovation, and knowledge-sharing – and the regional marketing machineries they have implemented. Officials apparently make reference to stories such as 'Mennonite barn raisings' to inspire experienced business people to mentor younger entrepreneurs, as was expressed in interviews we conducted. Similarly, tales of traditional German manufacturing systems are used to encourage technology workers and firms to cooperate in building a stronger regional economy. Despite the lack of direct involvement, discourses surrounding the German ethnic community have become part of the region's underlying economic culture. Surveys of members of the region's German social clubs confirm this disconnect between Kitchener-Waterloo's German ethnic community and its technology economy. Respondents in our survey had high

levels of (internal) social bonding capital used for personal purposes but little such social capital geared towards professional usage. In addition, (external) social bridging capital that could connect the German community to other parts of the regional economy was also weak. This was consistent across occupation, education, and income variables.

Still, having both a historical legacy of German influence and a self-image of a region that grew from this impact offers many opportunities for today's economic development, and especially for the formulation of political strategies. Political efforts could, for instance, be targeted at advertising the region's advantages to potential investors, particularly those from Germany, presenting the region as an extension of the 'German model' of industrial practices and actively promoting complementary institutional support in the region. It does not take much to envision how concerted actions, such as targeted trade missions, would have a substantial impact on the Kitchener-Waterloo region's economy in the future.

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References

- Anderson, A. R. & Jack, S. L. (2002). The articulation of social capital in entrepreneurial networks: A glue or lubricant? *Entrepreneurship and Regional Development*, 14(3), 193–210.
- Axelrod, P. (1982). *Scholars and Dollars: Politics, Economics, and the Universities of Ontario, 1945-1980*. Toronto: University of Toronto Press.
- Basu, A. & Altinay, E. (2002). The interaction between culture and entrepreneurship in London's immigrant businesses. *International Small Business Journal*, 20(4), 371–393.
- Basu, D. & Werbner, P. (2001). Bootstrap capitalism and the culture industries: A critique of invidious comparisons in the study of ethnic entrepreneurship. *Ethnic and Racial Studies*, 24(2), 236–262.
- Bathelt, H. & Glücker, J. (2011). *The Relational Economy: Geographies of Knowing and Learning*. Oxford: Oxford University Press.

- Bathelt, H., Kogler, D. F., & Munro, A. K. (2010). A knowledge-based typology of university spin-offs in the context of regional economic development. *Technovation*, 30(9), 519–532.
- Bathelt, H., Munro, A. K., & Spigel, B. (2013). Challenges of transformation: Innovation, re-bundling and traditional manufacturing in Canada's Technology Triangle. *Regional Studies*, 47(7), 1111–1130.
- Bloomfield, E. (1987a). Building industrial communities: Berlin and Waterloo to 1915. In D. F. Walker (Ed.), *Manufacturing in Kitchener-Waterloo a Long-term Perspective* (pp. 5–28). Waterloo.
- Bloomfield, E. (1987b). The Manufacturing Industrial Economy: Kitchener-Waterloo, 1915-1945. In D. F. Walker (Ed.), *Manufacturing in Kitchener-Waterloo a Long-term perspective* (pp. 35–53). Waterloo: University of Waterloo.
- Bramwell, A., Nelles, J., & Wolfe, D. A. (2008). Knowledge, innovation and regional culture in Waterloo's ICT cluster. *Regional Studies*, 42(1), 101-116.
- Bramwell, A. & Wolfe, D. A. (2008). Universities and regional economic development: The entrepreneurial University of Waterloo. *Research Policy*, 37(8), 1175–1187.
- Brewer, P. & Venaik, S. (2014). The ecological fallacy in national culture research. *Organization Studies*, 35(7), 1063–1086.
- Burt, R. S. (1992). *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology*, 110(2), 349–399.
- Chand, M. & Ghorbani, M. (2011). National culture, networks and ethnic entrepreneurship: A comparison of the Indian and Chinese immigrants in the US. *International Business Review*, 20(6), 593–606.
- Coffé, H. & Geys, B. (2016). Toward an empirical characterization of bridging and bonding social capital. *Nonprofit and Voluntary Sector Quarterly*, 36(1), 121–139.
- Colapinto, C. (2007). A way to foster innovation: A venture capital district from Silicon Valley and route 128 to Waterloo Region. *International Review of Economics*, 54(3), 319–343.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *The American Journal of Sociology*, 94(Supplement), S95–S120.
- Communitech (2018). *Why Waterloo? Small City. Big Impact*. Waterloo. Retrieved from <https://whywaterloo.ca/>.
- Dinnie, K. (2011). *City Branding: Theory and Cases*. New York: Palgrave Macmillan.
- Doutriaux, J. (2003). University-industry linkages and the development of knowledge clusters in Canada. *Local Economy*, 18(1), 63–79.
- Drakopoulou Dodd, S. & Patra, E. (2002). National differences in entrepreneurial networking. *Entrepreneurship and Regional Development*, 14(2), 117–154.
- Eastwood, D. G. (1987). The University of Waterloo, high technology and new firm creation. In D. F. Walker (Ed.), *Manufacturing in Kitchener-Waterloo a Long-term Perspective* (pp. 151–166). Waterloo: University of Waterloo.

- Gillmore, D. (2012). The invention of Waterloo. *Walrus Magazine*, (January/February).
- Glaeser, E. L. & Kerr, W. R. (2009). Local industrial conditions and entrepreneurship: How much of the spatial distribution can we explain? *Journal of Economics & Management Strategy*, 18(3), 623–663.
- Harvey, D. (1989). *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change*. Oxford: Blackwell.
- Hayton, J. C., George, G., & Zahra, S. A. (2002). National culture and entrepreneurship: A review of behavioral research. *Entrepreneurship Theory and Practice*, 26(4), 33–52.
- Henn, S. (2012). Transnational entrepreneurs, global pipelines and shifting production patterns. The example of the Palanpuris in the diamond sector. *Geoforum*, 43(3), 497–506.
- Hofstede, G. (2001). *Culture's Consequences: International Differences in Work-Related Values*. 2nd edn., Beverly Hills: Sage.
- Hsu, J.-Y. & Saxenian, A. (2000). The limits of Guanxi capitalism: Transnational collaboration between Taiwan and the USA. *Environment and Planning A*, 32(11), 1991–2005.
- James, A. (2005). Demystifying the role of culture in innovative regional economies. *Regional Studies*, 39(9), 1197–1216.
- Kasabov, E. & Sundaram, U. (2013). A stakeholder approach to branding clusters: Pointers to a research agenda. *Regional Studies*, 47(4), 530–543.
- Kennan, G., Pitts, G., & Scofield, H. (2006, April 25). Waterloo: A place that doesn't hold back its best. *The Globe and Mail*.
- Kenney, M. & Patton, D. (2011). Does inventor ownership encourage university research-derived entrepreneurship? A six university comparison. *Research Policy*, 40(8), 1100–1112.
- Kitchener-Waterloo Oktoberfest (2018). *German Heritage*. Kitchener. Retrieved from http://www.oktoberfest.ca/Welcome/German_Heritage.
- Klugman, I. & Lynch, K. (2015, August 19). Toronto-Waterloo corridor could be Canada's own Silicon Valley. *The Globe and Mail*.
- Klyver, K. & Foley, D. (2012). Networking and culture in entrepreneurship. *Entrepreneurship and Regional Development*, 24(7-8), 561–588.
- Kwon, S.-W., Heflin, C., & Ruef, M. (2013). Community social capital and entrepreneurship. *American Sociological Review*, 78(6), 980–1008.
- Landes, D. S. (1999). *Wealth and Poverty of Nations: Why Some Are So rich and Some Are So Poor*. London: Abacus.
- Leibovitz, J. (2003). Institutional barriers to associative city-region governance: The politics of institution-building and economic governance in 'Canada's Technology Triangle'. *Urban Studies*, 40(13), 2613–2642.
- Leonard, M. (2016). Bonding and bridging social capital: Reflections from Belfast. *Sociology*, 38(5), 927–944.
- Li, W, Lo, L., & Oberle, A. (2014) The embeddedness of bank branch networks in immigrant gateways. *Canadian Geographer*, 58(1), 48-62.

- Lin, N. (2001). *Social Capital: A Theory of Social Structure and Action*. Cambridge: Cambridge University Press.
- Lin, N. & Erikson, B. (2008). Theory, measurement, and the research enterprise on social capital. In L. Nan & B. Erikson (Eds.), *Social Capital: An International Research Program* (pp. 1–26). Oxford: Oxford University Press.
- Malecki, E. J. (2012). Regional social capital: Why it matters. *Regional Studies*, 46(8), 1023–1039.
- McQueen, R. (2010). *Blackberry: The Inside Story of Research in Motion*. Toronto: Key Porter Books.
- McSweeney, B. (2002). Hofstede's model of national cultural differences and their consequences: A triumph of faith - a failure of analysis. *Human Relations*, 55(1), 89–118.
- Meyer, S.P. (2006). A spatial analysis of small- and medium-sized information technology firms in Canada and the importance of local connections to institutions of higher education. *Canadian Geographer*, 50(1), 113-134.
- Munro, A., & Bathelt, H. (2014). Innovation linkages in new and old economic sectors in Cambridge-Guelph-Kitchener-Waterloo (Ontario). In D. Wolfe (Ed.), *Innovating in Urban Economies: Economic Transformation in Canadian City-Regions*. Toronto: University of Toronto Press.
- Nelles, J., Bramwell, A., & Wolfe, D. A. (2005). History, culture and path dependency: Origins of the Waterloo ICT cluster. In D. A. Wolfe & M. Lucas (Eds.), *Global Networks and Local Linkages: The Paradox of Development in an Open Economy* (pp. 227–252). Montreal and Kingston: McGill-Queen's University Press.
- Parker, P. (2001). Local-global partnerships for high-tech development: Integrating top-down and bottom-up models. *Economic Development Quarterly*, 15(2), 149–167.
- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24(1), 1–24.
- Portes, A. & Sensenbrenner, J. (1993). Embeddedness and immigration: Notes on the social determinants of economic action. *American Journal of Sociology*, 98(6), 1320–1350.
- Putnam, R. D. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.
- Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.
- Reinhart, A. (n.d.). *Waterloo Region's Tech Sector: A 150-Year Overnight Success*. Retrieved from <http://news.communitech.ca/columns/waterloo-regions-tech-sector-a-150-year-overnight-success/>.
- Reuf, M., Aldrich, H., & Carter, N. M. (2003). The structure of founding teams: Strong ties and isolation among U.S. entrepreneurs. *American Sociological Review*, 68(2), 195–222.
- Rutherford, T. D. (2006). Requiem or rebirth? Internal labour markets and labour market restructuring in the Kitchener and Sault Ste. Marie regions. *Canadian Geographer*, 50(2), 197–216.

- Sanders, J. M. & Nee, V. (1996). Immigrant self-employment: the family as social capital and the value of human capital. *American Sociological Review*, 61(2), 231–249.
- Saxenian, A. (1994). *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press.
- Saxenian, A. (2006). *The New Argonauts: Regional Advantage in a Global Economy*. Cambridge, MA: Harvard University Press.
- Shane, S. A. (1992). Why do some societies invent more than others? *Journal of Business Venturing*, 7(1), 29–46.
- Simon, B. (2011, July 13). Cracks in the heart of a cluster. *Financial Times*.
- Spigel, B. (2017a). Bourdieu, culture, and the economic geography of practice: Entrepreneurial mentorship in Ottawa and Waterloo, Canada. *Journal of Economic Geography*, 17(2), 287–310.
- Spigel, B. (2017b). The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*, 41(1), 49–72.
- Staber, U. & Sautter, B. (2011). Who are we, and do we need to change? Cluster identity and life cycle. *Regional Studies*, 45(10), 1349–1361.
- Statistics Canada (2011). *Census of Canada, 2011: Labour* [computer file]. Ottawa: Statistics Canada.
- Statistics Canada (2015). *Labour Force Survey Table 282-0132* [computer file]. Ottawa: Statistics Canada.
- Subedi, P. & Rosenberg, M. (2015). High-skilled immigrants – low-skilled jobs: Challenging everyday health. *Canadian Geographer*, 60(1), 56-68.
- Teixeira, C. (1998). Cultural resources and ethnic entrepreneurship: A case study of the Portuguese real estate industry in Toronto. *Canadian Geographer*, 42(3), 267–281.
- Thomas, A. S. & Mueller, S. L. (2000). A cases for comparative entrepreneurship: Assessing the relevance of culture. *Journal of International Business Studies*, 31(2), 287–301.
- Waldie, P. (2012, February 3). In RIM's hometown, angst and optimism. *The Globe and Mail*, p. B1.
- Walker, D. F. (1987). Expansion and adaptation in the post-war years. In D. F. Walker (Ed.), *Manufacturing in Kitchener-Waterloo a Long-term Perspective* (pp. 107–122). Waterloo: University of Waterloo.
- Weber, M. (1930). *The Protestant Ethic and the Spirit of Capitalism*. New York: Scribner.
- Weiss, A. (1987). Ownership change and the German family manufacturing firm in Kitchener since 1945. In D. F. Walker (Ed.), *Manufacturing in Kitchener-Waterloo a Long-Term Perspective* (pp. 107–122). Waterloo: University of Waterloo.
- Wilkinson, B. (1996). Culture, institutions and business in South Asia. *Organization Studies*, 17(3), 421–447.
- Wolfe, D. A. (2002). Social capital and cluster development in learning regions. In D. A. Wolfe & J. A. Hollbrook (Eds.), *Knowledge, Clusters and Regional Innovation: Economic*

Development in Canada (pp. 11–28). Montreal and Kingston: McGill-Queen's University Press.

Zhou, M. (2004). Revisiting ethnic entrepreneurship: Convergences, controversies, and conceptual advancements. *International Migration Review*, 38(3), 1040–1074.

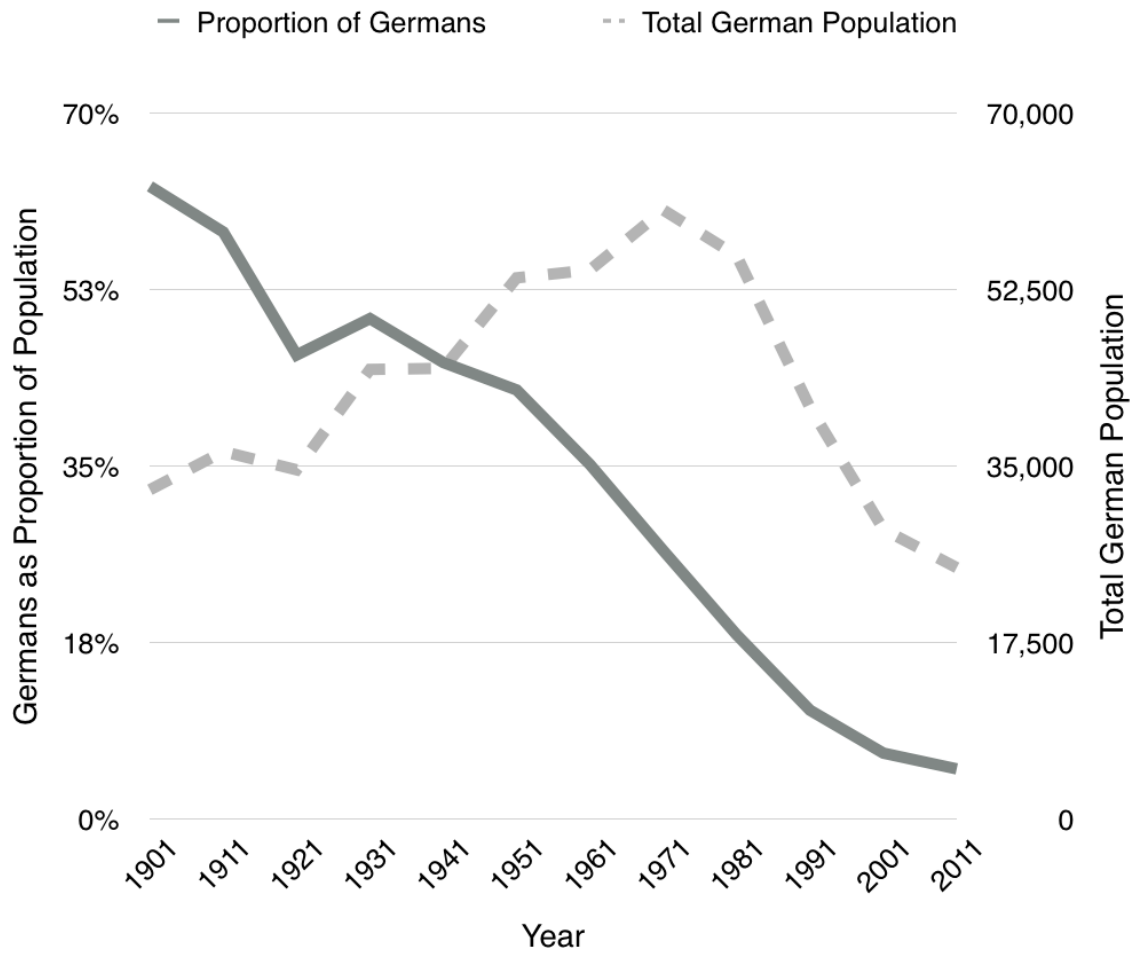


Figure 1: Residents with German ethnic origin in Kitchener-Waterloo census areas, 1901-2011 (source: Statistics Canada, various years)

Table 1: Response rate in the social capital survey of Kitchener-Waterloo's German ethnic community, by German social club

German social club	Surveys distributed	Completed surveys received	Response rate
Concordia Club and Concordia German Language School	420	63	15%
Transylvania Club	80	29	36%
German-Canadian Business Association of Kitchener	40	2	5%
German Choir	50	17	42.5%
Treffpunkt	30	12	40%
Total	620	123	19.8%

Source: Survey information

Table 2: Demographic information of Kitchener-Waterloo's German ethnic community according to the social network survey

Demographic variable	Mean	Minimum	Maximum
Age	51.82	16	84
Gender (female = 1; male = 0)	0.53	0	1
Occupational prestige ¹⁾	68.92	52	81
Proportion of life lived in region	0.72	0.02	1
Member of German community (yes = 1; no = 0)	0.83	0	1
Belief that there is a strong German community in region (yes = 1; no = 0)	0.95	0	1
Benefited professionally from the German community in region (yes = 1; no = 0)	0.57	0	1

Note: Occupational data was grouped into occupational categories, from which occupational prestige statistics were derived using Goyder (2010).

Source: Survey information

Table 3: Education, income, and occupational level of Kitchener-Waterloo's German ethnic community in the social network survey

Variable	Variable value	Number	Share (%)
Highest level of education	High school	25	20.3
	College/technical school	39	31.7
	Bachelor degree	34	27.6
	Master degree	16	13.0
	PhD/MD/LLB	6	4.9
	No response	3	2.4
Income	Less than \$50,000	35	28.5
	\$50,000 - \$74,999	11	8.9
	\$75,000 - \$99,999	21	17.1
	\$100,000 - \$150,000	21	17.1
	Over \$150,000	19	15.4
	No response	16	13.0
Occupation	Business, finance, and administrative	12	9.8%
	Health	6	4.9%
	Management	20	16.3%
	Natural/applied sciences	14	11.4%
	Art, culture, recreation, and sport	2	1.6%
	Education, law, social, community, and government services	31	25.2%

Variable	Variable value	Number	Share (%)
	Processing, manufacturing, and utilities	4	3.3%
	Sales and service	20	16.3%
	Trades, transport, and equipment operators	7	5.7%
	No response	7	5.7%

Source: Survey information

Table 4: Social resources as defined in the social network survey of Kitchener-Waterloo's German ethnic community

Social resource – Do you know someone who ...?	Type of resource
Invests in the stock market	Personal
You could borrow \$1,000 from	Personal
You could borrow \$5,000 from	Personal
Speaks and writes German	Personal
Has a masters or PhD degree	Personal
Can recommend a German language school	Personal
Is a member of the Rotary Club	Personal
Can refer you to a lawyer	Personal
Makes hiring decisions	Professional
Could give you a good reference if you were applying for a job	Professional
Could help you find a job	Professional
Could help you find a qualified employee for an open position where you work	Professional
Could give you advice on how to resolve a conflict at work	Professional
Knows about government regulations	Professional
Knows people in the media	Professional

Table 5: Occupational resources as defined in the social network survey of Kitchener-Waterloo's German ethnic community

Occupational resource –
Do you know someone who is a ...?

Doctor

Lawyer

Small business owner

Manager

Engineer

Machinist

Welder

Skilled trader

Teacher

Store clerk

Janitor

Table 6: Types of connections used to acquire occupational resources by Kitchener-Waterloo's German ethnic community

Type of professional/ ethnic social capital connection	Frequency of using		
	(i) social resources (share)	(ii) occupational resources (share)	(iii) social/ occupational resources combined (share)
No connection (Type 1)	637 (32.4%)	398 (29.4%)	1035 (31.2%)
Professional, not German (Type 2)	193 (9.8%)	167 (12.4%)	360 (10.8%)
Professional and German (Type 3)	235 (11.9%)	212 (15.7%)	447 (13.5%)
German, not professional (Type 4)	699 (35.5%)	406 (30.0%)	1105 (33.3%)
Neither German nor professional (Type 5)	203 (10.3%)	169 (12.5%)	372 (11.2%)
Total	1967 (100%)	1352 (100%)	3319 (100%)
χ^2 goodness of fit	646.2***	196.4 ***	831.9***

Note: * = significant at $p < 0.10$; ** = significant at $p < 0.05$; *** = significant at $p < 0.01$.

Source: Survey information

Table 7: Relative frequency of obtaining social capital through German connections (Types 3 and 4 in Table 6) by members of Kitchener-Waterloo's German ethnic community

Independent variables	Regression coefficients (standard errors)		
	Model 1	Model 2	Model 3
Intercept	4.880 (2.630)*	-3.862 (6.606)	-8.334 (8.189)
Age	0.064 (0.034)*	0.102 (0.043)*	0.096 (0.040)**
Proportion of life spent in Kitchener-Waterloo region	8.282 (2.120)***	10.131 (2.275)***	9.771 (2.073)***
Female	-1.963 (1.126)	-2.255 (1.145)	-2.401 (1.288)*
High education ⁽¹⁾	-	-0.476 (2.023)	-0.352 (1.851)
High income ⁽²⁾	-	2.405 (1.508)	2.470 (1.392)*
Occupational prestige	-	0.064 (0.091)	0.027 (0.088)
Professional benefits from German community	-	-	-1.306 (7.175)
Belief there is a strong German community	-	-	6.209 (4.213)
Professional benefits X belief in strong German community	-	-	5.158 (7.32)
N	107	87	83
Adjusted R ²	0.13	0.21	0.38
F-statistic	6.3***	4.91***	6.65***

Notes: ⁽¹⁾ Master degree or higher; ⁽²⁾ annual income above \$100,000.

* = significant at $p < 0.10$; ** = significant at $p < 0.05$; *** = significant at $p < 0.01$.

Source: Survey information

Table 8: Frequency of using personal and professional resources by the German ethnic community in Kitchener-Waterloo, according to type of social capital connection

Type of professional/ ethnic social capital connection	Frequency of using	
	(i) personal resources, number (share)	(ii) professional resources, number (share)
No connection (Type 1)	328 (33.3%)	275 (37.3%)
Professional, not German (Type 2)	58 (5.9%)	103 (14.0%)
Professional and German (Type 3)	92 (9.5%)	93 (12.6%)
German, not professional (Types 4)	390 (39.6%)	195 (26.5%)
Neither German nor professional (Type 5)	115 (11.7%)	71 (9.6%)
Total	983 (100.0%)	737 (100.0%)
χ^2 goodness of fit	465.3***	192.8***

Note: * = significant at $p < 0.10$; ** = significant at $p < 0.05$; *** = significant at $p < 0.01$.

Source: Survey information