

Economies of Speed? Bike Couriers, Pace, and Economic Development in the Global City

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Abstract

In this thesis, I propose that bike courier delivery is not merely a convenient service for clients but an important function in the operation of successful economies. By allowing the regions to function at higher speeds, same-day courier networks seem to play an active role in generating positive economic outcomes. The availability of courier networks is found to be as uneven as economic vitality itself. Cities like New York and Toronto have large, dense courier networks, capable of delivering items within an hour while smaller cities, do not support same-day courier service at all. They do this, in part, by allowing for couriers to cope with the precariousness of their work, and in part by providing supportive sub-cultures. These findings point to the role of service workers, and wider eco-systems in fostering regional advantage.

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The author observing an Alley Cat and trying not to get in the way. March 29, 2011

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Chapter 1: Introduction, Key Concepts and Methods

1.1 Introduction

To a lay urban observer, perhaps someone who enters a city for the first time or who travels to a big metropolitan area from a smaller place, urbanity might seem to be a type of movement. The city is different because it moves in a different way. It moves with subways and sidewalks –urban infrastructure that speeds the movement of people to their destinations. The rolling infrastructure of taxi cabs does the same, and is most common in big places. The city is also more polluted than the town – that is, there is more ‘movement’ of emissions from tailpipes. It is thought to be more dangerous – more criminals moving towards their targets. Urbanism might be a way of life (Wirth, 1938), but it is also instantly recognizable as a way of going.

How interesting then, that this essential urban dynamism tends to be obscured in conversations of how big cities compete against each other in the current phase of economic development. Dominant economic development scripts of the day encourage communities to attract firms through investments in industrial clusters and supporting infrastructures (incubators, training institutes, industrial associations) (Cooke,2001; Porter, 1998,) or tax inducements (Held, 1996; Harvey,1989). Alternatively attention is placed on increasing stocks of human capital through investments in various amenities (architecture, vibrant public spaces, recreational facilities or cultural attractions) (Mathur, 2005; Florida,2002; Clark et al., 2002). The city's ability to move people, things and ideas is not usually connected to its ability to ‘compete in the 21st century’. The competitive city is chronicled in Polaroid and not Super Eight. This critique is not intended as a dismissal of popular economic development theories, but as an early observation that motivates a more dynamic study of competitiveness in the global economy¹.

The bias towards seeing the city as motionless is, I propose, a natural outcome of empirical research. As soon as we count the city (its population, its productivity, and its emissions,) or as soon as we divide it up into discrete land uses, we ask it to stand still. In their published form, statistics are still things, and when pooled together to describe a city, it is all too easy to think of it as immobile as well. Indeed, the dominant theories of economic development (Florida, 2002; Glaeser, 1991; Porter, 1990), are all based on robust statistical analysis, where the city is described in terms of its industrial, occupational, or knowledge assets.

¹ Research on Global Cities (i.e. Zook and Brunn,2006; Sassen,1995; Sassen, 1991) does discuss the importance of globally oriented communications and transportation infrastructure. I mean to distinguish between this work, which focuses on global connections and work that would focus on internal transportation and speed.

One way to overcome this bias, and open up new insights into economic growth, is to treat the city as a self-contained biological unit, and theorize about it as such. Recent work in physics² on “Urban Metabolism” departs from conventional economic models by approaching the city as if it were a coherent, moving thing (see Bettencourt et al., 2008; Bettencourt et. al, 2007 but also Samaniego,2008; Decker 2007) and arguing that this organism becomes faster as it grows. For example, Bettencourt and colleagues (2008, 2007) suggest that virtually every type of social process - from speaking, to walking, to innovation - occurs at a faster speed in larger cities. Moreover, the process of urbanization is said to have improved the speed of innovation itself. The authors find that: “cycles of innovation are now typically shorter than a human lifetime, signifying that urban dwellers will experience several major societal adaptations throughout their life.” (Bettencourt et al., 2008: 292) This suggests that innovation, which has widely been credited as a fundamental source of the urban productivity advantage (Glaeser et al. , 1991; Porter, 1990; Jacobs,1969) might itself be rooted in urban velocity.

The urban metabolism/speed stream was the first influence on my decision to pursue a research study on bike courier service (BCS). While I accepted the detailed, empirical evidence for this relationship³, I could not find much theorizing on *why* larger, denser places generate higher rates of speed. In studying a specific occupation that delivers items at the highest speed in cities, I have sought to clarify *how* cities come to extract fast speeds from their inhabitants. Why do bike couriers only exist in cities, and in a seemingly small number of cities at that? Are there essential characteristics of urban places that might explain their speed of delivery, and in part, the speed advantage of cities? How do the service class occupations that generate speeds of transport and delivery contribute to economic development?

Early into my study I realized that an understanding of this basic question would require me to address several standing research topics outside of the urban metabolism literature. Because my research was a study of a specialized service in larger, globally oriented cities, work on producer services in global cities (e.g. Sassen, 2002; Scott et al., 2001; Beaverstock et al., 1999; Knox, 1995; Sassen 1991) assumed relevance. Literature on the economic rationale for service agglomerations in cities was also important.

Because bike couriers earn very low wages and are subject to highly flexible terms of work, it made sense to engage in literature around the growing “precariousness” of service work in post-industrial settings (e.g. Walks, 2001; O’Laughlin, 1996; Sassen-Koob, 1984). Because employment in BCS is on the ebb due to the diffusion of fast digital messaging, the economic literature on skill-based technical change, (how lower skill jobs seem to be most at risk of capital substitution), also seemed

² A particular non geographical and quantitative strand of research is being cited here. For a geographic perspective on how unnoticed infrastructure operates in the city please see the work of Kaika and colleagues (et al., 2006; 2005). The focus here is on the natural science work because of its focus on speed. Another significant difference is that the non-scientific work is more interested

³ For instance, one finding is that social and economic returns to size scale exponentially to the power of $\beta _ 1.15 > 1$, which infrastructure returns scale to the power of $\beta _ 0.8 < 1$. My ability to engage with this empirical work is limited.

relevant. By the end of my study, intrinsic rewards appeared to play an important role in explaining why some cities were able to support courier service and others were not, and the related literature on intrinsic rewards (Borghans, 2008; Krueger, 2008 Florida, 2003; Stern, 1999; Kalleberg, 1977) allowed me to benefit from previous thinking on this subject.

The study itself has been driven by issues raised in these literatures. Everything - from the research questions asked, to the methods used and the interview guides - has been connected to highlighted discussions. It is my hope that after taking so much from these literatures, I can give back a few insights about the role of service work and economic development in large cities.

The following paper tries to relate a city's ability to support bike courier service to its ability to compete. It begins with a review of these literatures that also identifies spaces where my study might add value. It continues with a discussion of my research questions and the methods that I have chosen to resolve these. I report the results of my study in three parts, one for each of the significant research questions, before I summarize the results of the paper in a conclusion.

This thesis mounts an argument about the role of bike couriers in the global city and the role of low-wage service workers in economic development. I begin by arguing that the geography of bike messengers, like the geography of economic growth, is highly concentrated in the metropolitan system. A series of statistical analyses establishes that bike courier service is heavily based in North America's global cities as well as the largest metropolitan areas on each continent. The second section identifies a unique value for bike couriers at the firm level and ultimately the regional level. The third section proposes that regional variations in labor market structure might account for why only some places are able to support bike courier service. Ultimately, I propose that bike couriers provide their regions with an important and uncommon service. This translates into higher speeds at a regional level ultimately a regional environment more supportive of producer services. Bike couriers, I suggest, show how service workers can be the source of regional economic advantage.

1.2 Literature and Concepts

The intellectual heritage of this study is vast. It relies on disciplines like geography, sociology, management, and economics and their discussions of globalization, precariousness, organizational theory, urban form and economic development. The most straightforward way to organize this literature is in reference to study itself. I have completed a study of a certain population, in select places, during a specific time. Each of these basic dimensions has been influenced by previous academic discussions. The research questions I ask and the loose hypotheses that I analyze are a product of these literatures and here I attempt to place my study within a wider genome.

Industrial Foundations of the Global City

Producer Services and the Global City

The setting of my study is in North American metropolitan areas with special emphasis on Toronto and also the large, "global cities" in the continental urban network. These are large cities that are thoroughly connected to other parts of the

world. Three decades of research on these “global cities” has worked to define a threshold of global connectedness, and also to explain the economic functions of, and rationale for, the global city. By my reading of this work, there is a stronger consensus around the economic underpinnings of the world city than there is around which cities are or are not in the global club.

Mayhew’s Dictionary of Geography defines a world city according to centrality, “a concentration of international activities”; and externality “a relatively high global role, compared to its national role”; and connectivity “as measured by the numbers and intensity of transactions”(Mayhew, 2006). But even in the articles cited in this definition, there is debate over how these features can be measured.

In a meta global cities article, Beaverstock and colleagues (1999) propose that below an alpha tier of global cities (London, New York, Tokyo) there is substantial debate over which cities are or are not ‘global’. The authors comb through fifteen previous studies and count the number of times a city is mentioned as a ‘world city’. While London and New York are mentioned in all fifteen, cities like Sao Paulo and Amsterdam are only mentioned ten times. At the other end of the spectrum, Bahrain, Charlotte and Detroit are only mentioned once (Beaverstock et al., 1999). Toronto is mentioned ten times, and ranks tied for 11th among the 79 cities cited (See Appendix 1 for a ranked list of North American cities from the article).

The study authors go on to claim that the concentration of ‘advanced producer services such as media, law, and finance is a reliable way to determine where each of these cities is on a global hierarchy. Their final world city taxonomy divides 55 cities into three tiers: an “Alpha” tier, a “Beta” tier and a “Gamma” tier- the higher a city is, the more specialized it is supposed to be in producer services, particularly advanced producer services.

Beyond just being a variable by which "global cityness" can be measured, producer services are supposed to be a founding rationale for the global city. The most cited studies in the field (e.g. Friedmann, 2002; Sassen, 1991; Friedmann and Wolfe, 1982) set the creation story of the global city within the context of the dispersion of production, and the concentration of producer services. I will now try to summarize this story.

At the global scale, advances in communications technologies, "leaner" manufacturing techniques and the proliferation of "free trade" agreements allowed for capital to move from traditional production centers to areas where production costs (especially labor) were lower. Through these relocations, some peripheral areas were incorporated into a global division of labor. The peripheries that are discussed range from non-core parts of "core" countries to non-core parts of non-core countries. For instance, Japanese auto "transplants" exhibited this tendency by building new plants on greenfield sites in non-union jurisdictions (Kenney and Florida, 1992; Mair et al., 1988), as did American textile "Maquiladoras" on the Mexican frontier (Gerreffi, 2000). In each case, new regulatory (e.g. NAFTA) and technological (e.g. advanced manufacturing equipment

and transportation/communication) systems opened up new geographies of production (Gereffi, 2000; Kenney and Florida, 1992)

While economic activity on the periphery was changing, core spaces came to generate a smaller share of their output from manufacturing and a larger share from services. US employment in service industries grew from 57% to 75% of employment between 1950 and 2000 (Lee and Wolpin, 2006). In Canada, service industries currently command nearly seventy-five % of employment and almost seventy percent of GDP (Vincent and McKewon, 2008). So called 'advanced producer services' (APS) were a fast growing and highly lucrative subset of producer services and the wider service industry. If producer services are intermediate services in which establishments are the consumers, then APS are the more human capital intensive industries within this categories. Although definitions vary, this category is usually meant to include media, law and finance (Beaverstock, 1999; Sassen, 1991; Jacobs et al., 2011), and can also include functions like research, physical distribution, advertising and selling (Marshall et al., 1987).

Advanced Producer Services were not themselves new economic activities, but they assumed a much greater importance in the post-industrial city. This is, in part, because the more global nature of production increased the level of complexity in coordinating geographically and functionally dispersed systems. As production was shifted to more peripheral sites, it became even more important for a central site to act as a command and control point for these activities (Sassen, 1991; Knox, 1995). This new imperative is reflected in the growth of the logistics industry since the late 1960's. Cowen (2010) observes that the globalization of the supply chain, and the coincident containerization of physical products coordinating distribution (logistics), became even more important. This fuelled the emergence of a logistics industry (Cowen, 2010)⁴.

Corporate offices are known to concentrate in world cities (Nachum, 2000). The literature proposes that the geography of APS is also heavily concentrated in world cities, especially the 'alpha' world cities of New York, London and Tokyo (Friedmann, 2002; Sassen, 2001; Taylor and Walker, 2001; Beaverstock et al., 1999; Sassen, 1991). In Canada, Coffey and Polese (1989) find that 80 % of producer services growth between 1971 and 1981 occurred in metropolitan areas. Shearmur and Doloreux find that between 1991 and 2001, the largest metropolitan areas in Canada began to specialize even more in knowledge-intensive services. Producer services are also expected to cluster within metropolitan areas, particularly in the Central Business District (CBD) (Rosenthal and Strange, 2005; Sassen, 2001; Helsey, 1990).

⁴ The development of logistics also illustrates how porous the boundaries between APS services can be. Logistics does not simply describe the act of getting an assembled product to a destination, but it also incorporates transportation cost considerations earlier in the production process, including during purchasing, inventory control and marketing (Cowen, 2010). In other words, the knowledge of 'how to move stuff around,' 'how to sell stuff to people' and "how to buy stuff" cannot be divided into discrete parts of the production process. Because knowledge acquisition is such a specialized process (i.e. each of these knowledge types can be associated with a different type of university degree), the development of logistics would be expected to usher in the centralization of advanced producer services in the same physical location – probably in a head office. But we would also expect that there would be agglomeration of logistics services at the regional scale, if only because operations clustered in the same location, are by definition clustered in the same region.

The basis of this agglomeration is said to be increasing returns for firms who locate in large cities or near firms of the same industry (Sassen, 1991). In economics and regional science, the advantages derived from industrial collocation (localization economies) are often distinguished from the advantages of locating in a large place (urbanization economies). Although this distinction is not evident in Sassen's work (1991, 2002), it would seem that urban size and industrial diversity is more relevant in a discussion of global cities, since these are always very large places with a variety of economic activities. In the next section I focus on the economic logic for locating in a large place (urbanization economies).

Urbanization Economies

The study of urbanization economies is a study of the un-priced productivity advantages available to firms in urban areas. The existence of some economies of scale *inside* the firm are fundamental in explaining why there are firms at all. Most products and services are produced most efficiently through a division of labor and corresponding specialization in a few production functions. A firm is the arrangement that allows for individuals to realize economies of scale by performing more of one (some) task (tasks). Some have argued that economies of scale external to the firm, explain why there are cities at all (Jacobs, 1969; Romer, 1986; Florida, 2003). These authors argue that absent urbanization advantages, there is no reason for cities to exist. They observe that because land, labor and capital are always cheaper on the periphery, firms would not locate in cities unless there were countervailing urbanization economies.

Based on my reading of the urbanization economy literature, I would like to identify and highlight three mechanisms for this advantage: learning, labor market advantages, and service specialization. I will now review each of these in turn. All three share several qualities. First, they are available to urban firms and not available to firms outside of cities. Second, they can be assumed to operate more efficiently in large cities than small cities. Third, they are un-priced. Firms do not have to purchase these benefits directly, but can access them by locating in cities.

The first type of urbanization economy is learning or "human capital" related. Here the mechanism for higher urban productivity is the ability to generate knowledge that does not have to be paid for by everyone who receives it (Lucas, 1988). Another interesting dimension of learning is that it is governed by increasing marginal productivity (Romer, 1986). A firm might achieve marginally less by increasing their stock of manufacturing machinery but more knowledge will always make more productivity. This property can be assumed to be universal of knowledge – whether it is obtained within an industry or across industries. Saxenian (1996) and Storper and Venables (2004) show that by allowing for more face-to-face interactions, urban agglomerations support a type of learning that cannot take place virtually. Non-codified and complex information is said to be harder to communicate in a virtual form. Trust, an important pre-requisite to economic cooperation, is easier to generate with someone that you can see in person. The city, as a place where more people co-locate at greater density, hosts more frequent face-to-face communication.

Second, large cities decrease the necessity of stockpiling labor. A larger and specialized labor force for an industry allows for firms to be more flexible in their hiring practices. Firms do not need to keep workers employed in order to keep them in the regional labor pool, because there are other firms that might employ them. This precludes firms from having to stockpile labor (Marshall, 1890 by way of Miron, 2010) or from paying labor to "sit around" until production can resume. The presence of multiple industries in large cities acts as a similar bulwark for firms. In the localization economy literature (see Piore and Sabel, 1984), there is discussion of how firms within industrial clusters can maintain a flexible pool of labor by sharing it.

But it would be a mistake to see this in localization terms alone, and not as a mechanism that works across industries. Stahl and Walz (2001) find that firms within a sector are sheltered from industry shocks, when they can "pool" labor with other industries. Indeed it is not uncommon for someone in one occupation to switch industries, and, in this case, the labor supply for the sending firm is "insured" by the receiving firm. Some occupational groups are said to be more prolific in this regard. According to Markusen (2006) and Vinodrai (2006) occupational groups like artists and designers can serve as reservoirs of labor for multiple industries during boom times and permanent sources of skill for a disparate group of industries.

Third, in large cities firms can workers that are better matched to functions (Duranton and Puga, 2004). The labor market in large cities is larger, and because no set of skills is exactly the same, it is also more diverse. Firms in cities benefit from these labor market conditions when they seek workers to match workers with tasks⁵. There is a consensus among localization theorists that industrial districts provide large pools of workers that allow for workers to specialize (see Marshall, 1890; Carlino, 1982; Fujita and Thisse, 1996). Specialization makes the district more productive in two ways. First, it provides a better match between the skills that a firm demands, and the skills that the worker possesses. Second, it allows for workers to demand more in terms of wages (Fujita and Thisse, 1996).

Finally, the agglomeration of specialized services in large cities has been demonstrated to act as an urbanization economy. In her definition of urbanization economies, Mayhew (2009) cites services such as "good communications and financial and commercial services such as auditing, stockbrokerage, advertising, investment, industrial cleaning, and maintenance" as some of productivity advantages that the cities provide. Fujita and Thisse (1999) argue that those in cities realize higher levels of utility because of the public services they have access to. Research has found that the agglomeration of services in cities is becoming stronger through time. The concentration of service work in cities appears to have grown recently. Desmet and Fafchamps (2005) find that while non-service sectors have moved out of the United States over the last thirty years, service industry sectors have become more agglomerated in large cities in the U.S..

⁵ Work on flexible specialization (ie Piore and Sabel, 1984) demonstrates that this advantage is also available to industrial agglomerations.

By what mechanisms do more specialized services provide higher levels of productivity? Returns to specialization on the consumption side would seem to be a main culprit (Fujita and Thisse, 1999). The more specialized a service is, the more productive it is likely to be, and a larger consumption base allows for a segmentation of services. Still, Melo et al. (2009) have called for more research on the role that service agglomeration plays in urban productivity and the current empirical study is intended to answer some of these questions about service economies.

Although access to services has been identified as an externality, there has been frustration by some that the literature focuses on manufacturers (and not service providers) as the subjects of agglomeration economy studies (Drennan and Kelly, 2009). Storper and Manville (2006) sum this problem up quite elegantly: "Much of the early research on agglomeration focused on manufacturing, and in this regard history may have played a trick on us, for we poured our efforts into understanding manufacturing as the basis of urban economies just as manufacturing was ceasing to be the basis of urban economies." (P.1249)

This typology of the urbanization economies literature does not engage with non-economic work on the relationship between urbanization and speed. I will now briefly describe this work before proposing that the intersection of these issues is a promising place for research.

Speed and Large Cities

The "urban metabolism" literature cited before now belongs to a larger family of research that establishes variation between the speeds of larger and smaller cities. Much of this work comes from psychology. Milgram (1970) argues that the density and population of cities create an excess of sensory inputs for urban dwellers⁶. Milgram also cites the empirical finding that walking speeds are one-tenth higher in Philadelphia, New York, and Boston than they are in smaller cities and towns. His explanation of this phenomenon is surprisingly practical, "the feeling of rapid tempo is due not so much to absolute pedestrian speeds as to the constant need to dodge others in a large city to avoid collisions with other pedestrians" (p. 1467). This finding has been confirmed elsewhere (see also Walmsley and Lewis, 1999; Wirtz and Ries, 1992) and explained in ever more sophisticated ways. Bornstein for example (Bornstein, 1979; Bornstein and Bornstein, 1976) compares the walking pace of pedestrians in British Isles cities and finds urban speed to be significantly faster. He offers three explanations in addition to Milgram's emphasis on cognitive overload. The first and least probable of these is that urban dwellers have learned to walk at faster speeds, which are more efficient from an energy standpoint. The second is that the presence of more people in an environment can inspire urban dwellers to be more active. The third, and perhaps most believable, is that because wages are

⁶ This overload is supposed to be managed through strategies that prioritize some inputs above others, and minimize the amount of time devoted to any one input. Like Wirth (1938) and Simmel (2005), he argues that the need to spread resources across multiple inputs conditions human relationships to be more superficial and transitory. Faster and more deliberate walking allows for urban dwellers to withdraw themselves from these inputs.

higher in cities, there is more of an economic incentive to get places faster. Walmsley and Lewis (1989) propose that urbanites walk faster as a way of compensating for the larger average distances that they must travel. Wirtz and Ries (1992) find that the age composition of a city is highly related to speed, and that cities with a higher share of young adults have faster pedestrian speeds.

The most conclusive study on pedestrian speed and urban size is one of the most recent (Levine and Norenzayan, 1999). The authors compare the overall pace of life in 31 countries by studying the largest cities in each country. They deploy an index composed of three speed measures: walking speed, the time it takes for a postal clerk to complete a standard request for stamps, and the accuracy of local clocks. The authors tested the relationship between speed and city size, local culture, economic dynamism, and climate. They find that cooler cities with vibrant economies and more individualistic cultures tend to be faster. While they did not find a significant relationship between city size and speed, they conclude that this is because their sample was heavily weighted towards very large cities. They propose that there is a cutoff point at which additional size does not correspond with additional speed.

Another key implication of the Levine/ Norenzayan study has to do with the general nature of speed. The individual components of the index are highly and significantly correlated with each other. This supports the idea espoused by the urban metabolism authors, that there is a general "urban pace" which transcends the individual level, or a particular type of movement. If there is an urban speed premium for large cities (as the literature suggests), then it might be tempting to treat it as an urbanization economy. Not only would it only be available to firms in cities, but it would (perhaps up to a cutoff point) be more available in larger cities, and it would also be un-priced. Firms do not have to pay any extra for workers that walk faster from one part of the office to another, but they do derive a (very small) benefit from this increased productivity. Urban speed is thus another feature that provides an incentive for firms to join large, urban agglomerations.

To this point I have sketched out the industrial foundations of the global city. I have argued that as producer services (advanced producer services in particular) have come to replace manufacturing activity as the base of economic activity, global cities have emerged. I have cited an observed tendency for these services to concentrate in a small number of places, and I have also tried to review the accepted economic rationales (and in particular urbanization economies) that render concentration logical. Finally, I have proposed that urban speed might act as an urbanization economy in its own right.

The Service Class Within the Global City

The next section will consider the occupational foundations of global cities. Global cities are as much collections of workers as firms. Their occupational mix and employment dynamics can be described generally, just as their industrial base

can. Here I will review studies on the occupational structure of the global city and try to connect them to more universal (as in not localized) trends in advanced capitalism.

Income Bifurcation, Occupational Class, and The Global City

The service-based global city is widely characterized by a higher degree of income polarization than existed before in the industrial or Fordist city (Walks, 2001; O'Loughlin, 1996; Sassen, 1991; Sassen-Koob, 1984). Hulkchanski's (2011) study of Toronto puts this trend in stark relief. He finds that between 1970 and 2005, the %age of neighborhoods with below average incomes increased from 19% to 53%, while the number of middle income neighborhoods decreased from 66% to 29%. This is usually explained in terms of the occupational mix of service industries. Service industries tend to have fewer jobs in middle income brackets than manufacturing industries, therefore, service-intensive global cities tend to have higher degrees of polarization (Walks 2001; Sassen, 1991)

There is also evidence that wages *within* service industries have become increasingly bi-furcated over time. O'Loughlin (1996) suggests that this has to do with a spatial mismatch in skills in formerly industrial cities. He claims that there was a shortage of workers in formerly industrial cities with the high levels of human capital (knowledge) required for knowledge intensive service jobs. Similarly, Berry and Glaeser (2005) find that regional economic returns to human capital have increased in cities over the past thirty years. As service industries grew, and demand for service workers grew apace, there was not a fully corresponding growth in labor supply, leading to wage growth for knowledge intensive service workers. Meanwhile, the service jobs that do not require high levels of human capital face downward wage pressures, as former industrial workers look for jobs that are at or below their skill level. These downward pressures are supposed to be accentuated in global cities, where larger stocks of immigrants further increase the labor supply (McDowell et al., 2009 ; Friedmann, 2002; Sassen, 1991) leading to lower wages for less skilled workers.

Income bifurcation in the post-industrial, global city suggests that there are two very different kinds of service workers in these places. On one hand, there are workers with high levels of human capital and increasing wages, while on the other hand there are workers with low skills, and lower real wages. Florida's (2002) creative class framework, is a useful way to make sense of the occupational bifurcation of cities. He assigns each occupation in the labor force to one of three main classes, based on the primary function of the worker. Jobs that rely on workers to operate heavy machinery and apply skilled trades fall under the Working Class. Jobs that cannot be scripted and rely on the worker to use original thinking and problem-solving (human capital intensive jobs) are part of the Creative Class. Service jobs that can be routinized and scripted, and that grant less

autonomy to workers, are considered "Service Class" jobs Florida's research⁷ has charted a growth in service occupation employment coincident with service industry growth. In both the United States and Canada, the share of the labor force in service occupations grew from roughly 30% to roughly 45% between 1950 and 2000 (Florida, 2003)⁸. The US large metropolis with the lowest creative class share is Las Vegas (17%), less than Washington D.C. , which at 39% has the highest share.

For the most part, the rise of high-end creative work is said to be related intimately to the ascent of service class work. The ascent of creative workers is supposed to generate a higher demand for service class workers who are supposed to be responsible for reproducing the creative lifestyle. In addition, the distribution of the creative class is said to be highly concentrated.

Florida's class structure appears to be useful as a framework for understanding the labor market. For instance, even though these classes are not defined according to income, Florida's (2009) research does place each class at a discrete place on the income continuum. In Canada, Creative Class workers make up just over 30% of the labor force but command 48% of all wages, while Service Class Workers make up more than 40% of the workforce and only 31% of the wages. The Working Class share of income is 19.4%, just under its share of the workforce. Ratios in the US are comparable.

While Sassen-Koob (1984) and others (Friedman, 2002 , O'Loughlin, 1996) describe the global city underclass as members of certain industrial sectors: "a vast army of low-skilled workers engaged in manufacturing, personal services and the hotel, tourist and entertainment industries " (95) - it might be more precise to say that they are members of the service class. There are high autonomy, high human capital jobs in every industry - including tourism and personal services but the true polarization in the global city occurs across an occupational spectrum. Service Class workers are compensated less than creative workers because they relate to the industrial system in a completely different way. Creative Class workers are asked to trade original thinking and problem-solving for wages; Service Class workers are paid less to perform repetitive, non-creative work.

Scheduling and Polarization

Wage acts as an important dimension of polarization in the global city but it is by no means the only one. Since the Floridian approach assumes that labor market difference is rooted in a person's relationship to production, and not in the wage

⁷ Considerable debate has followed the creative class theory since it was first presented. For some, the theory is too a-political or perhaps too complicit in legitimating "neoliberal" urban policies (Tremblay et al., 2008; Peck, 2005). For economists, (most notably Glaeser, 2005) Florida's typology is redundant with pre-existing human capital measures, which are based on educational attainment. These arguments are important, but they do not challenge the typology on the basis of its analytical usefulness. In fact, Glaeser finds that regional creative class share is, (like educational attainment,) associated with better regional economic outcome, while Peck adopts Florida's class language as he critiques his politics. For all of Peck's facetiousness about creatives, he never argues against the validity of the construct. This said, it is worth asking whether the concept has some external salience for regional analysis.

⁸ This is not a foregone conclusion, given the growth of the service industries, because a sizeable amount of service industry employment is made up of other classes. In the United States and Canada around 35% of service industry employment is in non-service occupations. In Denmark, the number is nearly 50% (Stolarick et al., 2010).

they happen to receive, it allows for other dimensions of difference to be observed. Numerous dimensions could be involved here, but three are most salient to the present study. I will now survey how Creative and Service Class jobs are supposed to be polarized in terms of their intrinsic rewards, their level of job formality, and their susceptibility to global economic changes. When possible, I will try to cite how the global city is supposed to be a site of hyper-polarization along class lines.

Capital 'Flexibility' is said to be a defining feature of post-fordist/post-industrial manufacturing. For instance, Piore and Sabel(1984) emphasize the importance of re-programmable machinery, and a shift towards smaller and more customized production runs. But as Christopherson (1989) points out, the more labor-intensive services sector came to deploy its workers under more nimble arrangements. Christopherson's focus is on the growth of part-time, temporary and contracted work arrangements. These are "flexible" in two key ways. First, they allow for employment levels to be tailored more to market conditions -lowering fixed costs for labor. Second, they allow for employers to lower their staff of full-time workers, and consequently the amount of non-wage benefits that they have to pay (Kalleberg, 2000).

Just as with wages, flexible labor practices are still more common for some occupational groups than others. Esping-Andersen (1992) argues that under post-industrialism, higher skill, higher human capital workers are more likely to fill a valued and more permanent core, while less skilled workers are more likely to be part of a "pool of labor reserves"(p 5) to be tapped as necessary. Tilly (1988) estimates that 66% of American part-time workers come from "predominantly low-skill clerical, sales, and service occupations,"- that is, Service Class jobs. Within the part-time workforce, he estimates that 4.7% of all workers are part-time involuntarily, while 9% of workers are part-time for "non-economic reasons". According to June 2011 Bureau of Labor Statistics estimates, the share of involuntary part employment is 6% - roughly equal to the share of voluntary part time employment (BLS, 2011). Similarly, Cohany (1998) observes that employment through Temporary Help Agencies, is dominated by workers from clerical (Service Class) and machine-operating (Working Class)⁹ occupations. She does observe that independent contracting is dominated by Managerial (Creative), sales (Service) and provision production (Working) occupations¹⁰. As Ross (2008) points out, there are also highly contingent segments within the creative class that work under precarious, non standard conditions that share more with low-end retail workers in terms of work structure than other knowledge workers.

⁹ Determinations of class membership were made in consultation with the original Creative Class occupational schema, which is maintained by the University of Toronto's Martin Prosperity Institute. My thanks to the MPI and its Research Director, Kevin Stolarick for providing me with this access.

¹⁰ A related revelation has to do with job satisfaction. While 52% of Temporary Help Agency workers say they would prefer to be employed under traditional employment terms, 84% of Independent Contractors in her sample say they prefer their "alternative arrangement". This might have something to do with compensation. Both Cohany and Kalleberg (2000) note that many contractors make more than their fulltime peers. It also might have to do with the perceived values of "flexibility" that Florida (2002) cites, as in the ability to decide one's own schedule, environment and project. We can expect for these features to be more available in a contracting setting than elsewhere.

Kalleberg notes a decidedly more pernicious side to contracting, even among high wage workers. Firms are not as liable for harm caused by contractors whom they do not train, leading to a disincentive for providing workers with training on safe practices. Thus, the tenuous relationship between employers and contractors can carry physical risk. Firms are also found to creatively interpret who is a part-time worker. By the legal definition of independent contracting, contractors are assumed to have more than one client but an estimated 38% of firms mis-categorize their workers as contractors to avoid paying a payroll tax (duRivage, 1992).

Flexible labor practices depend on a particular local regulatory environment. Local features such as "right to work" legislation can serve to facilitate flexible work by making it more difficult for employees to organize. Furthermore, definitions of what is and is not full-time work vary across jurisdictions, as do the legal entitlements of full-time workers. Finally, as the duRivage citation shows, flexible labor practices can rely on weak enforcement of regulations that are on the books and the appetite for enforcement of laws can vary by law enforcement agency. For all of these reasons, we can expect for different regions to have different levels of support for flexibility. Borrowing heavily from Harvey (1989; 1987), Walks (2001) observes that global cities, under heavy pressure to compete with each other, are more likely to "dismantle" unions and other institutions that regulate the labor market.

Skill Based Technical Change and Offshoring

A final area of polarization is related to the existential security of occupations. While there is more short-term uncertainty in the schedules of service workers, there is also long-term insecurity. According to research on "Skill Based Technical Change", low-skilled occupations, of the type concentrated in the Service Class, are more vulnerable to outsourcing and machine-based substitution. While discussions of outsourcing and technological substitution often take place separately, Levy and Murnane (2004) point out that offshorable and substitutable jobs have the same sorts of characteristics. They also argue that technology, particularly computerization, is a necessary step in making a job offshoreable, citing the example of assembly line work which is supposed to be "lost to both to offshore producers and robotics". Monarcz et al. (2008) rate all service occupations based on their potential to be exported. Many of the jobs deemed "most offshoreable" in this study are those like computer programmers and x-ray technicians, whose output can be converted into binary format and transmitted electronically. Locally bound services such as haircuts do not share this feature and are not at risk of being offshored. In general, services not as amenable to offshoring as manufacturing occupations.

What specific characteristics make functions vulnerable to these forces? The authors propose that tasks guided by structured, deductive rules that can be known ahead of time are most likely to be scripted or programmed. Tasks which demand the processing of inductive rules or of rules that cannot be articulated are much more difficult to substitute for. Tasks

that require aptitude in social intelligence are very difficult to offshore, while jobs that require little to no interaction are not. Crang (1994) notes that interpersonal improvisation required by interactive service jobs such as serving, is mostly immune to offshoring and automation.

It is possible to deduce from these general rules a few generalizations about substitutability and occupations. Bound and Johnson (1989) and Berman et al. (1998) find that human capital and new technology are actually strong complements. Similarly Autor and colleagues (1998) observe that the integration of computer technology was strongest among scientific industries. Scott (2009) notes that there is an emerging "division of labor" between jobs that are easily substituted with technology and those that are not. Echoing this, Bhide (2010) notes that some services (even more knowledge-intensive services such as x-ray analysis) are being increasingly off-shored away, and that tasks related to innovation and commercialization are remaining,

Scott's 2009 study of skill bases in U.S. metropolitan areas gives a glimpse of how skill-based technical change might be more acute in some places than others. He finds that large metropolitan areas have large concentrations of cognitive skills, while some physical skills (strength, endurance, coordination) are more concentrated in smaller places. He proposes that some physical skills are demanded in large cities in order to create and maintain its infrastructure, and support the "ebb and flow of urban life". Other than this, the work I have reviewed on skill-based technical change does not address how it might vary spatially within advanced countries. But stretching our deductive abilities even further, we might expect for cities with large supplies of low skilled, immigrant workers to experience *less* capital substitution for low skilled functions. In these places, the relative benefits of capital substitution would be less than in places where labor was more expensive.

The subject of skill based technical change in cities, has been invoked in the discussion of a particularly urban occupational group – bicycle couriers. Numerous periodical articles have reported that digital technology has forced the bike courier industry into contraction (See Lomax, 2011; Reisman, 2010; CBC, 2009; Fitzpatrick, 2008). Mankiw ties this to the polarization of incomes between skilled and unskilled workers. Still, no academic studies have considered the effects of globalization and technology on bike courier service, and I have yet to encounter a study that examines the role of place in either accelerating or slowing these general trends.

Economic Development, Producer Services and the Global City

The final section will discuss how the industrial and occupational frameworks reviewed previously have been used in discussions of regional economic development strategy. While the definition of economic development is, generally speaking,

either contested or vague, I adopt Mathur's (1999) elegant version. He argues that economic development is "a change in employment and/or per capita income that is self-sustained [endogenous]" (p.204). Economic development is then a set of policies and initiatives that seek to achieve one or both of these conditions.

According to the theories of New Economic Geography, advanced by Krugman (1991) and associates (i.e. Fujita and Thisse, 1996) economic development under capitalism is subject to strong pressures towards regional divergence and the concentration of economic activity. This is said to be related to the returns to agglomeration identified in the first section, but also to the tendency for these initial advantages to be "locked in" over time. If regional economic growth is concentrated, then efforts to institute economic development are considerably less so. Virtually every jurisdiction in North America has at least one (probably several) government divisions that are charged with generating new economic activity and the imperative for politicians to "create jobs" is almost universal, especially during recessions.

Harvey (1989) argues that since the late 1970's (that is, since the beginning of neo-liberalism), cities have been forced to compete even more intensively with each other for footloose economic activity. Shrinking city tax bases and smaller transfer payments from higher levels of government are supposed to render cities "entrepreneurs" in a highly competitive field. The research on global cities discusses how this subset of cities competes for entry in, and position within, the global cities club. Indeed, rankings and rosters of global cities (see Beaverstock et al., 1999) work to re-enforce the idea that cities are competition with each other, as they attempt to engage the connectedness of individual places. (McCann, 2004)

What theoretical frameworks does economic development practice tend to rely on? It would strain credulity to think that all economic development initiatives were directly grounded in theory, but at the very least the academic literature can be discussed in this way. When practice is tied to theory, it is possible to describe two distinct types of economic development: a traditional type that is focused on attracting firms, and often targets outside firms from certain industries, and a newer type that seeks to attract workers, and almost always target a particular occupational segment.

Industrial Targeting and the Economic Base

For a long time, economic development theory has emphasized the importance of industrial targeting. The range of advocated industries is large. For instance, in an exhaustive review of recent¹¹ articles from *Economic Development Quarterly*, Currid-Halkett and Stolarick (2011) find articles on the targeting of "Green Industries", "Creative Industries", "High Tech Industries" and more. These industrial categories are internally quite broad (i.e. Green Industries can include the manufacturing of solar panels and also eco-tourism), and together they span a wide swath of all goods and services production that occurs in

¹¹ The authors looked at articles published in EDQ between 2003 and 2010

an economy. Although it is difficult to characterize the industries that are targeted, industrial targeting almost always seems to focus on industries and firms that expand the "economic base" of a region, that is activity that meets "non-local demand" (Mayhew, 2009).

Porter (1990) is perhaps the most influential advocate of industrial targeting. He encourages regions to foster industrial agglomerations of clusters, arguing that healthy competition and cooperation among local forms is an important feature of successful agglomerations. He places each industry into one of three categories: "traded industries", "local industries" and "resource dependent industries". Local industries are all those that do not expand the economic base of a region, resources industries are those devoted to extraction of a geographically fixed and physical resource, and traded industries are those that sell non resource products and services to other regions and other countries (Porter, 2003). At a fundamental level this economic base maxim makes sense. Since local demand only circulates income within an economy, growth in local demand sector cannot by itself translate into a higher regional income level. Porter also argues that wage shares of traded industries tend to be higher than for the other industry classes, even though they only command one third of employment on average.

The literature on traded and basic industries begs the question: Are the producer services and advanced producer services of the global city "basic"? Unfortunately, the answer to this question is not straightforward because many of the same producer service industries can perform basic and non-basic functions. As an example, there is a non-basic legal industry in virtually every urban agglomeration because there is a universal tendency towards some law-breaking and law disputing. At the same time, there are also law firms in global cities who will perform services on behalf of clients that are based elsewhere (Sassen, 1991). Literature on economic development and producer services treats the degree to which a service is "footloose" as a determination of whether not it can play an economic development role (Wernerheim and Sharpe, 2003; Lindahl and Beyers, 1999; Coffey and Polése, 1989). A footloose industry is, according to Mahew's 2009 *Dictionary of Geography*: "An industry whose location is not influenced strongly by access either to materials or markets, and which can therefore operate within a very wide range of locations". With services, it would seem that the market component of this definition is crucial. Returning to the example of lawyers, the market for personal injury lawyers is probably a lot more distance sensitive than the market for corporate lawyers, because (among other things) personal injury lawyers are needed spontaneously, while corporate lawyers are usually kept on retainer. It is more difficult to travel out of the commuting shed to use a service, when you have not had the opportunity to plan for the trip.

Coffey and Polése (1989) argue that the prospects for regional economic development around producer services in Canada are bleak because they are not sufficiently footloose. This limitation is supposed to be especially pronounced in non-

metropolitan areas. Werneheim and Sharpe (2003) suggest that advanced producer services are reliant on place-specific social and economic infrastructure - such that they cannot be picked up and dropped in another regional context. Borrowing from Cooke and Leyerdorff, (2006) the authors also argue that advanced producer services constitute more of a soft "knowledge infrastructure" for other growth activity, than an economically desirable target in its own right. Taken together, these studies reflect the traditional economic development thinking. An activity is only thought to be worthy of attention if it can be relocated from somewhere else, or if it will expand the economic base. The present study questions these assumptions by examining a particularly non-basic and non footloose portion of producer services.

Human Capital Targeting

The past fifteen years have been marked by a move towards worker-centered economic development targeting. Based in the thinking that human capital contributes positively to regional outcomes, these policies have seen local development officials attempt to attract human capital (i.e. workers rather than firms and industries) to certain regions. These policies, as well as the theories that spawned them, are rooted in the notion that some occupations are more central to economic growth than others.

In my review of urbanization economies, I listed "human capital" based externalities as one of the mechanisms by which urban firms achieve higher levels of productivity. Human capital levels have also been shown to be a mechanism for strong regional economic performance. Jacobs (1973; 1992) was one of the first writers to posit a connection between human capital stock and economic growth. Her anecdotal work argues that the transmission of knowledge between industries within urban settings, yields high levels of productivity. This argument has been formalized by very capable admirers like Robert Lucas and Edward Glaeser each of whom have incorporated Jacobs' thoughts on creativity and human capital into formal models of urban growth. The Lucas model proposes that human capital achieved through learning-by-doing exists as an externality for the economy because it is only reflected in the wage levels of the person who acquired it. Because cities promote more learning-by-doing it is suggested, these are cities of greater human capital formation.

Similarly, Mathur (1999) says that high human capital levels are a necessary input into the production of economically valuable, technological knowledge and reflect a strong entrepreneurial pool. Glaeser's work has established the human capital/growth connection empirically. Glaeser and colleagues relate urban population growth (Glaeser et al., 1992; 1998) and income (Glaeser et al., 1995; Glaeser, 1994) at the city level.

In the economics literature, human capital is almost always defined as the share of the workforce with a university degree or higher, but, as has already been suggested, Florida's occupational measure provides an alternative human capital measure. Florida's (2002) says the occupational measure is designed to be a better proxy for human capital because it reflects how a person's skill is actually incorporated in the economy, as opposed to education, which might never be put to use. It is a

striking detail that one of the most influential figures in human capital theory - Jane Jacobs - did not complete a university degree. However, as Glaeser points out, the correlation between both measures is still quite high (Glaeser, 2005). For the most part there is no conception of "basic" and "non basic" occupations. An exception to this is found in the work of McGranahan and Wojan (2007), who exclude doctors and lawyers from the Creative Class because they are said to be providers of a local service.

Florida has made the very helpful point that human capital is a flow and not a stock (Mellander and Florida, 2007) and just as Porter advocates courting "footloose" industries, human capital theorists support theories that channel human capital to a region. There is considerable debate among human capital theorists about what regional characteristics might influence the distribution of human capital across space. The presence of universities (Glaeser 2005) is cited as an influence, as is the presence of amenities that are supposed to complement a 'creative lifestyle' (Florida, 2002; Clark et al., 2002).

Perhaps the most novel regional characteristic, and the one most related to urbanization, is Florida's conception of tolerance (Florida, 2002). Creative workers are said to be attracted to areas that value new forms of expression, new ideas, and outsiders. This tolerance is said to vary regionally within North America. It is said to be related to both the location preferences of human capital, and outcome measures like wages and income (Florida et al., 2008). Florida marshals several indicators of tolerance, including a measure of homosexuals in a metropolitan region, a measure of artists in a region, and a measure of the percentage of the population that is foreign born.

Human capital economic development theory is not written explicitly with the global city in mind, but the large, globally connected cities are by no means excluded. The dynamics of human capital and regional growth are assumed to be universal under post-industrialism. The imperative to channel human capital applies in the global city as much as the smaller, less outward facing one. The defining feature of human capital strategies, no matter how human capital is defined, is that they seek to make the regional environment more amenable to human capital and ultimately to channel flows of human capital to their region. Bike couriers would not be considered to be human capital workers under any definition, since they are mostly less educated than average and engaged in rote, low-skill task. This study stubbornly questions the role that they might have in spite of their limitations.

Targeting Reconsidered

The two part typology of economic development frameworks just discussed fits snugly with the literature review on global cities that I have presented. This is not a coincidence. Global cities can be defined by a firm and industry mix that favors producer services (particularly advanced producer services), but they can also be recognized according to their particular mix of workers. Economic development in these places can pivot on the attraction of supposedly valuable industry segments or

supposedly valuable workers. Put another way, it can focus either on bolstering the current industrial base of the global city, or on adding to the top half of its polarized labor market.

The privileging of some economic activities above others begs an important question: "Are important segments of the economy being left out of dominant economic development paradigms?" It is not hard to find critiques of targeting strategies as elitist or exclusionary (see Donegan and Lowe, 2008; Sheamur, 2006; Peck, 2005). This type of critique is concerned with how targeting is unequal or undemocratic. It is less common to find the argument that the excluded segments do play an active role in growth or vitality, that they are more than "parasites" on the targeted industries and occupations (Williams, 1997). The following study is designed, in part, to question prevailing economic development assumptions with reference to economic growth and development, and not equity. In other words, it seeks to engage with the extant literature on its own terms.

1.3 Research Questions and Methods

This study has been motivated by a gentle skepticism with dominant economic development paradigms. My goal is not to refute the dominant theories. I believe that these theories are mostly valid, if perhaps narrow in focus. More precisely, I believe that a strong economic base and a high human capital level are important, but insufficient conditions of regional economic productivity. This research examines the possible role of a service class population in the generation of regional advantage.

I have chosen to explore the role of bike couriers in economic development by understanding where bike couriers are, what role they play in the economy, and how the structure of the courier labor market might explain why couriers are in some places and not others. I will now review my research questions along with the methods I have chosen to answer them.

Research Question 1- The Regional Geography of Bike Courier Service

My first research question is "What is the geography of same-day delivery service in North America?" One of the reasons that I chose bike courier service as the subject of my research is because I perceive that it is concentrated in the very largest metropolitan areas. In the beginning this was merely a hunch because there are no available studies of the geography of bike courier service and no official statistics on bike courier service either from the national statistical agencies or the courier industry. Studies on producer services and advanced producer services have tended to discuss producer services as a whole (Coffey and Polese, 1987; Sassen, 1991; Jacobs et al., 2011). Even if bike couriers were included in these studies (and they are not), it would be impossible to distinguish the geography of one industry versus another.

The methods I have chosen are intended to establish a quantitative level for courier service across metropolitan areas in North America. The concept of "bike courier service" can be captured through multiple indicators, such as employment,

quality, and establishments. Rather than arbitrarily choose one of these dimensions, I have chosen three. My hope has been to compensate for the shortcomings of one indicator, by relying on another indicator

Courier Employment Location Quotients

Employment in bike courier occupations is one obvious way to benchmark the level of bike service in a city and this is reasonable under the assumption that bike couriers are utilized at the same rate in every place. Since uniform employment data on bicycle courier service does not exist, I have collected employment data for all same-day couriers in both the US and Canada. Both the Canadian Census and the US Economic Census collect information from workers about the industry that they are employed in and publish this data at the metropolitan level. I have collected metropolitan employment counts from the most recent versions of these two products. In Canada, this means I have collected 2006 data for all 33 Census Metropolitan Areas. In the US, this required me to collect 2007 data for Metropolitan Statistical Areas (MSAs).

For the purposes of this study, the region's courier employment level is defined as its stock of workers in a single four-digit North American Industry Classification system (NAICS) code: 4922. According to the US Census bureau, this code includes employment at "all establishments primarily engaged in providing local messenger and delivery services of small items within a single metropolitan area or within an urban center"¹². It is important that I collect information at this level of detail because it distinguishes couriers that perform deliveries within the city from those that deliver between cities. At higher levels of industrial classification, same-day and next day delivery personnel are grouped together.

I have chosen to collect data on industry employment rather than data on occupational employment, which counts the number of people that declare courier as their occupation on their census form. Over the past decade, occupational analysis has become a popular substitute for regional analysis based on industrial structure (Florida, 2003; Feser, 2003; Markusen, 2004). What's more, occupational data seems ideal for this study since my study population is an occupational group. Industry data, which includes both couriers and courier support staff (dispatchers, administrative assistants, managers), appears to be imprecise.

I have elected to use industrial data, in spite of these considerations, because it allows me to distinguish couriers that might reflect the urban metabolism of a place from those performing the final step in a product's distribution chain. The most detailed Canadian and American occupational data that I can access, groups many non same-day courier functions under the courier category. For instance, at the 3-digit NOC-s level in Canada, the three-digit "Courier Messengers and Door to Door

¹² This category therefore includes all couriers regardless if their mode of transport. This limitation will be reflected on in the results section.

Distributors” category includes such job titles as “Flyer Distributor”, “Newspaper Carrier” and “Paper Boy” (Statistics Canada, 2006). While these functions are also related to the same day delivery of some *thing*, they are predictable functions that have to do with the delivery of a standard product. Unlike bike courier service, these deliveries follow predictable schedules – newspapers and advertisements come out at the same time, and realize very few rewards for speed. If a bike courier delivers something twice as fast, he or she will dramatically improve his/her opportunity to earn more income - this is not the case for a newspaper deliverer. All of this suggests that the local “metabolism” of commerce cannot be read as reliably from these functions as others.

To facilitate comparison of employment counts across different sized metros, I have converted employment counts into location quotients (LQs). The location quotient is a standard score that compares the amount of a sub-population in an area, to the amount that would be expected based on the larger population (Leigh1970; Isserman1977). Location quotients above one mean that there is a higher concentration than would be predicted; LQs below one mean there is a lower concentration. In my case, I will compare the level of courier employment in a region to the predicted level based on the size of its labor force.

In order to know more about the relationship between courier employment and regional variables, I also conducted correlation analysis between the LQs and a range of variables. This was supposed to provide some clues about a possible influence of regional economic and social structures on courier employment. The variables chosen correspond with variables used in analysis of the quality survey. They are described in the "Regional Characteristics" section below.

Courier Company Survey

Courier industry employment is not a sufficient way to gauge dimensions such the quality or price of bike courier service in North American metros. In addition to being imprecise, employment data does not reflect the productivity of local courier service. It is possible that on a per worker basis, some metros are less expensive or faster places to deliver than others. To capture these quality-related dimensions of service, I also conducted a telephone survey of bike courier operators across North America.

The survey was conducted in a sample of seventy-two cities across the continent: thirty in Canada and forty-two in the United States. Due to the small size of the metropolitan system in Canada, it was possible to conduct research without sampling. All Canadian MSAs were studied with the exception of four Francophone cities where I was not able to conduct the survey in the native language: Quebec, Saguenay, Sherbrooke and Trois-Rivières. A full list of Canadian cities researched can be found in Figure 1.

Figure 1 Canadian Cities Studied in Quality Survey

Toronto (Ont.)	Hamilton (Ont.)	Saskatoon (Sask.)	Guelph (Ont.)
Montréal (Que.)	London (Ont.)	Regina (Sask.)	Moncton (N.B.)
Vancouver (B.C.)	Kitchener (Ont.)	St. John's (N.L.)	Brantford (Ont.)
Ottawa - Gatineau (Ont./Que.)	St. Catharines - Niagara (Ont.)	Barrie (Ont.)	Thunder Bay (Ont.)
Calgary (Alta.)	Halifax (N.S.)	Kelowna (B.C.)	Saint John (N.B.)
Edmonton (Alta.)	Oshawa (Ont.)	Abbotsford (B.C.)	Peterborough (Ont.)
Québec (Que.)	Victoria (B.C.)	Greater Sudbury / Grand Sudbury (Ont.)	
Winnipeg (Man.)	Windsor (Ont.)	Kingston (Ont.)	

The American portion of the survey was conducted in a sample of Metropolitan Statistical Areas (MSAs) that has been stratified across five size categories. Each of the ten largest American MSAs was studied, based on the assumption that courier service, like other producer services (Lindahl and Beyers, 2008), would be more likely to be found in the very largest urban contexts. In addition, selecting the top ten cities ensures that each global city in North America (according to Beaverstock et al., 1999) is represented. Beyond this, eight metros from four size categories were randomly chosen and studied. The size categories and cities chosen can be found in Figure 2.

Figure 2 US Cities Studied In Quality Survey

Ten Largest MSAs	1 Million +	500,000 -999,999	250,000-499,999	50,000-249,999
New York (NY/NJ/CT)	Minneapolis (MI)	Fresno (CA)	Lansing (MI)	Johnson City (TN)
Los Angeles (CA)	Baltimore (MD)	Albany (NY)	Asheville (NC)	Lake Charles (LA)
Chicago (IL)	Sacramento (CA)	Worcester (MA)	Huntsville (AL)	Vineland (NJ)
Dallas (TX)	San Jose (CA)	Grand Rapids (WY)	Port St. Lucie, (FL)	Madera (CA)
Philadelphia (PA)	Providence (RI/MA)	Little Rock (AR)	Brownsville (TX)	Dothan (AL)
Houston (TX)	Milwaukee (WI)	Poughkeepsie (NY)	Shreveport (LA)	Odessa, TX
Washington (DC)	Louisville (KY)	Ogden (UT)	Lafayette (LA)	Lebanon (PA)
Atlanta (GA)	Salt Lake City (UT)	Portland (ME)	Greeley (CO)	Jonesboro (AR)
Boston (MA)				
Detroit (MI)				

The quality survey was designed to gather three categories of variables from courier companies in the selected cities: fastest speed for a delivery within the metro core, the cost of the standard delivery and the number of bike courier companies. For each metro area, I attempted to identify five bike courier operators and then solicit a price and time quote for the fastest delivery that those firms offered. I then calculated averages for the “Fastest Delivery Time”, and “Fastest Delivery Cost” in each metropolitan area. In some cases only five bicycle courier companies were identified, and I recorded the number of companies found in one of 3 categories (5+, 1-5, 0).

Standard courier shipments were used in each quote (See Figure 3). Quoted shipments were fairly uniform in terms of distance, since they took place within the same 3 digit base postal code (for Canada), and 5 digit zip code (for the US). To ensure that quoted deliveries applied to the same type of area, I used the postal code of the central city’s City Hall, as the reference postal code for each city. The City Hall is one of the facilities that is usually found in a city’s Central Business District, and these areas tend to be relatively homogenous in terms of their features and density.

Survey respondents were identified using what might be the most representative business directory available for free - Google. Over the past decade search engines have established themselves as a more reliable resource for finding customers than print yellow, white pages or newspapers (Young, 2011). Search engines like Google also allow for researchers to mine businesses in a metropolitan area from a remote location at very little cost. In addition, websites that are linked through Google can be updated more than once a year, and can be found through categories that the searcher defines (Fry, 2004). All of these

were important advantages as I looked for a valid and reliable method to recruit bike courier vendors. Recruiting firms through Google should be considered a form of sampling and not a perfect representation of how many firms are available. However, the search engine does seem to be a valid tool for a researcher to find firms, if only because it allows the researcher to be in the same position as members of the market themselves.

Finally, the sampling method that I have chosen seems to be more rigorous than the one that Statistics Canada uses in its monthly (national) survey of courier prices (Statistics Canada, 2011). The government uses data from the Top 5 national (inter-city) couriers to determine 80% of the index, and a “subjective sample of establishments for the local messenger portion”. No further information is provided on how local operators are chosen.

Figure 3 Standard Shipment Dimensions

Weight	1 Pound
Delivery Pickup Date and Time	May 5, 2011, 9 AM
Delivery Origin Zip Code	City Hall Zip Code for MSA
Delivery Destination Zip Code	City Hall Zip Code for MSA

Analysis of the quality survey took place in three parts. At the most basic level, I tabulated each city's performance on the number of bike courier establishments, average price, average fastest time, and a combined ranking of the two. This was intended to provide a sense of how (or whether) the level and quality of bike courier service varies across space. I also calculated summary statistics for three categories of metropolitan areas: places without bike courier companies, places with one and five bike courier companies, and places with more than five. In order to determine whether there is a statistically significant relationship between the level of bike courier service and regional characteristics, I have also performed a regression analysis. Because the dependent variable in this case is not continuous, I have performed an ordered logit regression analysis. Logit regression allows an analyst to determine the strength of probability of an event, given an independent variable.

I performed two different types of logit-regression analysis: an overall logit regression to determine the relationship between urbanization and the number of bike courier companies, and a marginal effects logit to determine the effects of a marginal increase in an independent variable. Ordered logit regression is a modification that allows for more than two dependent variables to be examined at the same time. I chose three dependent variables so that I might be able to distinguish cities with high levels of competition in bike courier service, from cities with less from cities with no bike couriers at all.

Regional Characteristics

I will now summarize the regional variables that I have elected to use in the summary statistics and logit regression. There are four types of variables: one related to level of urbanization, another to economic strength, another to level of post-industrialism and yet another to level of social tolerance. Each of these variables is collected at the metropolitan level (MSA in the US and CMA in Canada).

The level of urbanization refers to the overall size of the urban agglomeration. In other words, these variables could be independent variables in studies of urbanization economies. I have used population, population per square kilometer, and total employment as indicators of urbanization. Each of these measures comes from the 2006 American Community Survey (US) and the 2006 Canadian Census.

Economic strength refers to a region's success on key economic development indicators. GDP per capita refers to the total amount of regional economic activity, divided by the total regional population. US GDP data is sourced from the US Bureau of Economic Analysis (2006). Canadian GDP data is estimated, based on the relationship between US GDP data and US average regional incomes. Average wage refers to the total number of wages paid in a region divided by regional population. This data is from the two most recent censuses. Patents per capita is a measure of a region's ability to generate economically valuable knowledge¹³. Data comes from the United States Patent and Trademark Office, which tracks the place of residence of a technology's inventor. While there is potential that USPTO data will undercount patents in Canada, other studies rate the chances of this as very low because Canadian inventors tend to patent in both countries (Beaudry and Schiffauerova, 2011). The point is also moot, because the Canadian Patent office does not publish place of residence data.

The level of post-industrialism attempts to capture the degree to which a region's economy is oriented towards the functions of advanced capitalism, reviewed in the first section of the literature review. Put differently, it attempts to capture how strong the shift from Fordism to Post-Fordism has been in a region. The measures I have used reflect the numerous approaches of measuring Post-Fordism from the literature. Florida's Creative Class (2002) measure is used, since he demonstrates that an increase in the creative workforce is a feature of the post-industrial transition. A location quotient for "high-tech industries" is used to gauge Post-Fordism from an industrial perspective. US high tech data comes from 2006 County Business Patterns Survey while Canadian data comes from the 2006 Census. Finally, I gathered data for the traditional human capital measure used by Glaeser (2005, 2003, 1991) and others: the share of the workforce with a university degree or higher. This data comes from the 2006 ACS and the 2006 Canadian Census.

¹³ I do not mean to suggest that all patented technology has a commercial use, but rather that one standard for patents, is that they have a use.

The level of social tolerance is supposed to convey the type of social mix celebrated by Jacobs (1969) and operationalized by Florida (2002). All three metrics were obtained from the Martin Prosperity Institute, which gathered them from the 2006 ACS and the 2006 Canadian Census. The Gay Index is constructed as a location quotient for gay males that live together and identify as partners. The Bohemian Index measures the regional share of artists in the economy and is supposed to indicate openness to the alternative viewpoints and lifestyles. The Foreign Born Index, which has variously been called the melting pot index, or mosaic index, measures the regional share of residents who were born in another country.

Research Question 2- The Comparative Value of Bike Courier Service

The second question is “What value does courier service offer over its substitutes?” In the age of instantaneous electronic delivery, what role does bike courier delivery play? Bike couriers compete in a rather crowded market for delivering goods and ideas. Substitutes such as next-day delivery, self-reliant delivery and car courier service (or e-mail and fax) are widely available. This question is supposed to get at the unique advantages that bike courier services might offer and how these might have changed over time.

Research Question 3- Labor Market Conditions and Regional Advantage

The third research question is, “What are the labor market conditions for bike couriers?” Some literature has characterized global cities according to their supply of low income service workers (McDowell et al., 2009; Friedmann, 2002; Sassen, 1991). This work does not simply describe the quantity and relative position of these workers, but suggests that they play an important role in the reproduction of global city life. The large supply of immigrants in global cities is supposed to be a contributor to low wages for service work (Walks, 2001; Sassen, 1991). Flexible terms of employment, such as contract, part-time, and contingent employment are considered to be another important feature of production both in global cities (Walks, 2001, Harvey, 1989;1987), and under Post-Fordism in general (Piore and Sabel,1984).

Fincham's studies of bike couriers in the United Kingdom (2007,2006) says that bike couriers are attracted to their occupation because it is enjoyable and gives them access to a sub-culture. The first title of the 2007 study is quite evocative: "Generally speaking people are in it for the cycling and the beer!". Because Fincham's interest is in the sociological dimensions, he does not explore how much the intrinsic rewards are worth to his population, for instance whether or not couriers take an earnings discount like scientists in Stern's (2004) study do. My study seeks to put these intrinsic rewards into a traditional market framework, where workers trade their labor for traditional wages and other rewards. Other conditions of employment like schedule, autonomy, and flexibility are also examined.

Methods for Research Questions 2 and 3

The second and third questions have been pursued through a single qualitative method: semi-structured interviews with participants in the courier service market. I conducted twenty-eight interviews with representatives of three within Toronto's courier market, including bicycle couriers, bicycle courier managers and bicycle courier clients. Figure 4 lists each of the respondents. Because the city's bike courier community is very small, I had to take special care to protect respondent anonymity. For this reason, I will only refer to them by their occupation and number¹⁴, and I will only disclose their experience in their occupation. The length of interviews ranged between 15 and 200 minutes. Once interviews were performed, they were transcribed and coded using NVivo research management software.

Figure 4
Table of Interview Participants (And Experience in Position)

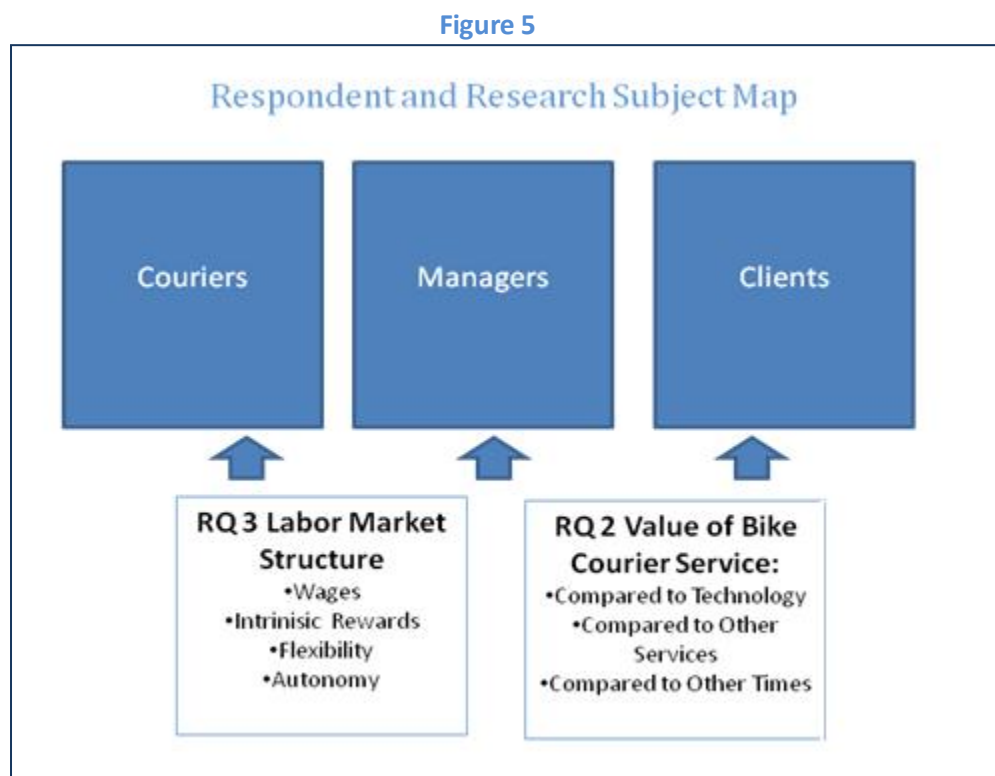
	Couriers	Managers	Clients
1	Female Courier 1 3 Years	Courier Owner 1 15 Years	Law Firm Office Manager 1 4 Years
2	Female Courier 2 4 Years	Courier Owner 2 23 Years	Law Firm Office Manager 2 12 Years
3	Female Courier 3 3 Years	Courier Owner 3 12 Years	Lawyer 7 Years
4	Male Courier 1 3 Years	Courier Owner 4 20 Years	Law Firm Human Resource Manager
5	Male Courier 2 15 Years	Courier Manager 5 8 Years	Law Firm Office Manager 3 13 Years
6	Male Courier 3 2 Years		Architecture Firm Office Manager 3 Years
7	Male Courier 4 16 Years		Software Firm CEO 5 Years
8	Male Courier 5 4 Years		Advertising Firm Director 14 Years
9	Male Courier 6 2 Years		Music Firm CEO 4 Years
10	Male Courier 7 3 Years		University Office Manager 1 3 Years
11	Male Courier 8 5 Years		University Office Manager 2 20 Years
12	Male Courier 9 21 Years		

The setting of the research is the Metropolitan Region of Toronto. Toronto is obviously a convenient place for me to conduct this research. Prior to starting my research, I already was connected to some members of the courier community and was able to take advantage of this in recruitment. The city also happens to be a promising setting for this study. The city maintains a thick network of both bicycle and automotive couriers, and the local Yellow Pages list at least 25 companies that

¹⁴ The number assigned is random and does not correspond to, for instance, the order in which subjects were interviewed.

offer same-day courier service. Most importantly, Toronto is a global city (if not an alpha global city) and promises to have bearing on both my research questions and the wider literatures.

The interviews were designed so that two of the three groups are responsible for providing insights about each question. This is to help control for bias. It is very possible that an actor's position in the courier market will impact how they perceive the value of bike couriers or the structure of the labor market. Insights into the value of courier work have come mostly from courier managers (who are responsible for offering the service) and courier clients who must regularly justify the decision to use a bike courier. In addition, couriers themselves helped in understanding the types of items that are usually delivered by courier. Information about the labor market came from both "sides" of the market: owners and managers who pay for couriers, and the couriers who perform services. Figure 5 depicts which groups were asked about which research questions.



Couriers were recruited through "snowball" sampling, with two separate starting points. I secured five courier contracts through a friend in the local biking community and subjects that he would refer me to. The rest were recruited with the help of the Toronto Bike Messenger Association (TBMA). TBMA was kind enough to forward a description of my research to their Facebook "followers", and I was ultimately able to recruit eight couriers this way. Courier managers at eleven local companies were sent recruitment e-mails. Two managers were recruited directly through this method, and the other three through contacts of the managers who responded. Three courier clients were recruited through "cold" e-mails and telephone calls (50+ e-mails were sent); the remaining eight were referred to me by friends and co-workers.

In literature related to research methods (See Baxter and Eyles, 1997), opportunity and snowball sampling techniques are considered to be less valid than, all things being equal, random sampling. While a random sample might have been preferable, snowball recruitment of couriers and owners was appropriate because the populations involved are so small. In my interviews I have heard conservative estimates that there between 150 and 200 bike couriers in the city. This implies that I have been able to conduct detailed interviews with between five and eight percent of the labor market. I believe that, with such a high rate of representation, the probability of a sample bias is fairly small.

I attempted to recruit managers and clients on a random basis but was not able to do so. For this reason, each sample should not be considered fully representative. I have worked to mediate this problem by talking to two separate occupational groups for each question. If responses are consistent across two occupational groups, then it is reasonable to expect for them to be consistent within occupational groups. I hope that building my research across different occupations has both improved the richness of my findings, and the validity of general observations.

The number of respondents has been dictated by my level of confidence to answer the questions. Prior to conducting this research, I set a round target of 30 interviews (10 for each group). I was able to reach these levels for clients and couriers, and by the time I did I was comfortable that I could address the research questions. It would have been preferable to have interviewed with one or two more courier managers, but considering how consistent their responses are, I am comfortable about drawing meaning from what I have.

The small sample of interview respondents has influenced how interview material has been analyzed. My goal in analysis has been to draw general conclusions based on commonalities across the responses for each group. For the most part, I have avoided a comparison of respondents within a group, and have attempted not to report observations that are contradicted by other respondents. In addition to identifying themes from the interviews, I have also identified quotations that are supposed to elaborate on or evoke these themes.

Chapter 2: The Geography of Bike Courier Service in North America

2.1 Introduction

Research on the geography of producer services has found that this set of activities is heavily concentrated in space. Canadian studies from the likes of Coffey and Polese (1989) and Shearmer and Doloreaux (2008) have found heavy producer service concentration in the largest metropolitan regions. The tendency to cluster is also said to be present at smaller scales. Within the, producer services are said to cluster in Central Business Districts (Rosenthal and Strange, 2005; Sassen, 2001; Helsey, 1990) and even within the same corporate headquarters (Nachum, 2000). Producer services are said to be a founding function of Global Cities, and heavily concentrated in these large globally connected places (Sassen, 2001; Taylor and Walker, 2001; Beaverstock et al., 1999; Sassen, 1991), especially in the top tier of the global city network (Beaverstock et al., 1999). This literature suggests that bike courier service, a producer service, would be found in the largest metropolitan areas. Indeed because bike courier service is so specialized, we might expect for it to be even more concentrated than producer services at large.

The geography of bike courier service, the places where couriers are and are not, has bearing on several discussions, beyond the geography of producer services. The first of these is the relationship between urban size and speed (Bettencourt et al., 2008; Bettencourt et al., 2007). Research on urban metabolism has convincingly established this relationship, but the mechanisms by which cities achieve high speeds are not specified: this analysis will explore fast, same-day delivery as a possible mechanism.

Perhaps most importantly (for my purposes), the geographic distribution of bike couriers might say something about the relationship between bike couriers and economic success. If the geographic distribution of bicycle couriers is diffuse, like the distribution of non-basic services like retail clerking and bartending, then it would be more difficult to say that couriers play an important role in economic development. As has been pointed out, economic growth is highly concentrated at a regional level, meaning that factors explaining economic success must also be concentrated. A "spiky" distribution of couriers across space acts as an interesting ultra-sound for the hypothesis that bike couriers are important from a development perspective.

This chapter describes a basic geography of bike courier service in North America using three separate variables for couriers and bike couriers. In addition, it tries to understand this pattern statistically by exploring the relationship between bike courier geography and wider socio-economic features.

Three geographies of bike courier service will be sketched, each based on a different definition of bike courier service. The first will be based on national industrial statistics for all couriers (i.e. bike couriers, car couriers and more) from Statistics

Canada and The US Census Bureau. The second will be based on a survey of bike courier firms that I conducted on a sample of cities. The third will be based on service quality measures that I collected in the survey. In each case, I will probe the relationship between the distribution of courier activity and the presence of other regional characteristics.

2.2 A Geography of Local Messenger and Delivery Employment

NAICS 4922 counts a range of delivery people under the same type industry category. Couriers who deliver by car, truck, bike, or foot are all included, as are those who deliver small packages, legal documents, food, and groceries.¹⁵ Accordingly, this section will discuss the geography of the bike messenger genus, not the particular species. Prior to discussing the spatial distribution of NAICS 4922, it is important to consider the spatial biases that are built into the industrial code's definition. According to the US census, NAICS 4922 is made up of firms that operate *within* an urban area, and not firms (like DHL and FedEx) that operate between cities or national postal services. This suggests that the geography of NAICS 4922 employment might be more regionally diffused than the geography of the courier industry in general (for instance all jobs in the NAICS 49 category). It is important to remember that even though this level of detail is too granular for my purposes, it is not representative of all "courier"¹⁶ activity.

There are 45,395 employees under the Local Messenger and Delivery NAICS code in North America. Of these, 31,220 workers are in the United States and 14,175 are in Canada (American Community Survey, 200; Census of Canada, 2006). At the most granular geography and with the finest industry definition, the distribution of couriers is distorted from the distribution of workers as a whole. In fact, the location quotient of Messengers and Delivery personnel in Canada is 1.6 compared to .85 in the U.S.

Figure 6
National Concentration Comparison - Local Messenger and Delivery Service

Country	Local Messenger and Delivery	All Employees	Location Quotient (N=2)
<i>United States</i>	31,220	114,509,626	.85
<i>Canada</i>	14,175	27,617,520	1.6

¹⁵ As was discussed in the methods section, this category also includes non-messengers. Again, there is no reason to expect for the non-courier portion of the industry to vary considerably over space. For one, the average size of a courier establishment in the United States is 7 according to calculations made from the American Community Survey- suggesting that the average firm does not have much room on staff for non-couriers. This was corroborated by my visits to firms in Toronto. At each firm, I observed no more than two support staff (including the owner.) Finally, because the largest inter-city companies are excluded from this measure, the data will not be skewed by the location of distribution or logistics centers.

¹⁶ The title of NAICS 4922 also raises the question of the language I use throughout this analysis. I use the terms "Bike Couriers" and "Couriers" to refer to the study population because this is the common name for them. However, DHL and Purolator are also referred to as couriers by statistical agencies, and the workers I have spoken to define themselves as "messengers". It would be difficult to satisfy everyone equally with my language, so I defer to my own preference.

Marshal and colleagues (1987) cite "Physical Distribution Services" (like Local Messaging and Delivery) as one of the producer services that is found in global cities, alongside law, advertising, and research, and finance. Still, some of these services are more producer-oriented than others. My experience with bike courier companies (who usually deliver by multiple modes) is that they are set up to deal with businesses. For instance, most courier companies track orders through account numbers, and bill by invoice - two customs that are much more common in the producer services.

Even so, it would seem a bit rigid to ignore that individuals do demand physical distribution service directly. The firms and couriers I spoke to reported doing deliveries for private individuals and firms. And because employees in the industry serve both businesses and consumers, it is harder to predict whether the geography of 4922 is more tied to the local market or to the demands of local businesses.

I plotted location quotients for courier industry employment against a region's total regional employment to address the issue of consumer/producer driven distribution. Location quotients are plotted in Figure 7. The range of values suggests that there might be demand for a certain level of courier employment among all metropolitan areas. Each metropolitan area in the sample registered at least some employment in the industry. Due to data disclosure limitations, values lower than 20 were not listed. They have been estimated at ten for this analysis.

The lowest LQ is .13 and belongs to Worcester. The next four lowest places are all American metros that are relatively small: Lansing (.23), Charlottetown (.34), Brownsville (.36), and Lafayette (.38). The highest five values belong to American cities of various sizes. Fresno, with 200 couriers, has a LQ of 3.15, more than 3 times what its labor force size would predict. Hinesville (2.73) is second, followed by Los Angeles (2.63), Kingston (ON) (2.35), and New York (2.02). Canadian regions are considerably more clustered around the LQ baseline of 1. The most specialized metro in Canada is Abbotsford (1.97), and the least specialized is Oshawa (.53). Of Canada's three "World Cities" (as defined by Beaverstock et al., 1999) Vancouver has the highest specialization (1.29). Toronto (1.08) and Montreal (1.07) have LQs remarkably close to 1, and to each other.

The three largest cities in the United States have three of the strongest relative concentrations of the industry, and also very large absolute concentrations. Twenty-nine percent of Local Messenger and Delivery workers reside in the top three regions, compared to 14% of the US workforce overall. These cities have much larger labor forces than their peers in the sample. Based in this observation, it is possible that the high concentration of couriers in the largest places reflects high degrees specialization and service provision in cities with workforces larger than 3,000,000 people. These cities also have the three highest scores on Beaverstock et al.'s (1999) ranking of global cities.

If a very large size city seems to predict courier employment does size generally explain the relative distribution of the industry? To get at this, I performed a linear regression using location quotient for 4922 as a dependent variable and total

regional employment as an explanatory variable. The results suggest that, generally, there is very little relationship between relative concentration in the industry and total employment. The coefficient of .093 is weak and of very little interpretative value, although it does indicate that the relationship is more positive than negative.

Figure 7



To further understand the relationship between NAICS 4922 employment and urbanization, I performed a correlation analysis between the 4922 LQ and two measures of population (See Figure 8). Because my initial distribution was extremely skewed (probably due to the uneven stratification of my sample), I rescaled the correlations using the logged values of both Population and Population Density. The results of this analysis are consistent with the linear regression analysis. Neither the log of regional size nor the log of regional population density is significantly related to the location quotient of couriers. It would appear that the range of delivery functions contained within this NAICS code is not especially demanded by large places.

I also investigated the relationship between relative industry concentration and a set of economic, labor structure, and social environment variables. None of the variables are significantly related to each other, with the exception of the

Bohemian Index at the 5% level. The service class is actually negatively (and not significantly) related to the NAICS 4922 industry share even though it is service-class intensive; in Canada 58% of workers in the 492 Industry code are service class workers¹⁷. The finding that artistic (e.g. creative) workers are significantly and positively related with courier employment, and not the overall service class, is a key finding of the entire analysis.¹⁸ This will be supported in subsequent discussions. At this point it is worth re-iterating that the share of bohemians can be read as both a reflection of a post-industrial labor market and as an indicator of social "tolerance" at the regional level (Florida, 2002).

¹⁷ Based on calculations conducted by the Martin Prosperity Index, using microdata from the Survey of Labor and Income Dynamics

¹⁸ I understand that the coefficient here is small, but the magnitude of this finding is amplified by the qualitative section.

Figure 8
Correlation Matrix: Courier Industry Location Quotient and Regional Variables

			Courier LQ	Log_Courier LQ
Urbanization	Log Population	Pearson Correlation	.226	.219
		Sig. (2-tailed)	.068	.077
		N	66	66
	Log Population Density	Pearson Correlation	.153	.158
		Sig. (2-tailed)	.221	.206
		N	66	66
Courier Industry	Local Delivery + Messaging LQ	Pearson Correlation	1	.920**
		Sig. (2-tailed)		.000
		N	66	66
	Log Local Delivery + Messaging LQ	Pearson Correlation	.920**	1
		Sig. (2-tailed)	.000	
		N	66	66
Labor Market Structure	Creative Class Share	Pearson Correlation	.024	.015
		Sig. (2-tailed)	.846	.904
		N	66	66
	Service Class Share	Pearson Correlation	-.043	-.046
		Sig. (2-tailed)	.729	.711
		N	66	66
	Bohemian Index	Pearson Correlation	.210	.268*
		Sig. (2-tailed)	.090	.030
		N	66	66
Economic Performance	High Tech Industry Location Quotient	Pearson Correlation	-.006	.030
		Sig. (2-tailed)	.962	.811
		N	66	66
	Average Income	Pearson Correlation	.032	.051
		Sig. (2-tailed)	.797	.682
		N	66	66

** . Correlation is significant at the 0.01 level (2-tailed).

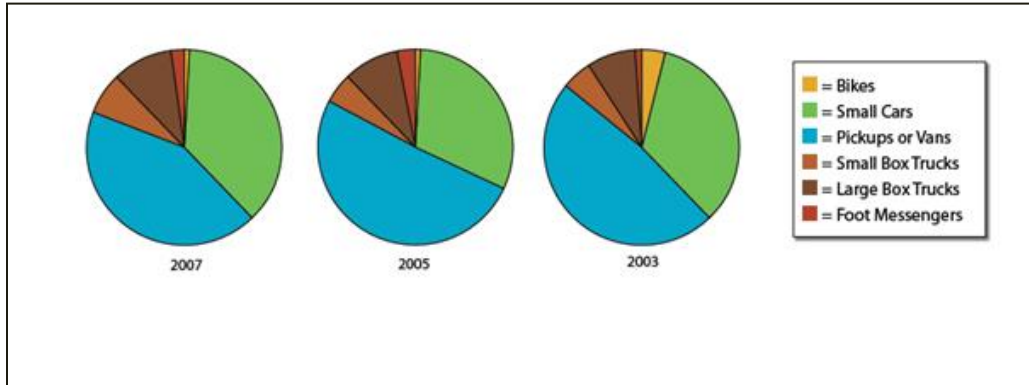
* . Correlation is significant at the 0.05 level (2-tailed).

The distribution of employees in the 4922 NAICS code is more diffused than concentrated. Each metropolitan area in the sample registers some employment in this industry. Considering that the sample includes very small metro areas like Hinesville-Stewart, Georgia and Cleveland, Tennessee, we should not consider the presence of same-day, intra-city delivery to necessarily be some cosmopolitan or megacity feature. Most regions registered 4922 LQs around the base of 1, suggesting that the geography of this service is more similar to basic consumer services like retailing. In other words, it appears that marginal returns to urbanization might be lower for delivery and messaging than for all physical distribution services other advanced producer services generally.

There may be a very large city effect at the high end of the population and 4922 distributions - cities with workforces above 3,000,000 have very high concentrations of messengers and delivery persons. This effect applies to three of America's alpha and beta global cities, but not to Canada's only three global places. The heavy concentration of courier service activities in these very big places may suggest that courier geography might be more oriented to producers than they are in other places. At the very least, it suggests that demand by one group (either producers or consumers) is higher in these places. This high demand probably reflects a heightened specialization (either on the consumption or production side) in large cities that has been observed elsewhere (see Fujita and Thisse, 1996).

While discussion of this data is useful, the level of industry granularity complicates the discussion of specialization related to bike couriers. Industry data suggests that bike couriers make up a very small (and decreasing) share of the total industry. Every couple of years, a trade organization, The Messenger and Courier Association of the Americas, releases results of a member's survey. Their 2007 report shows (Figure 9) that in 2007 bike messengers made up a very small share of total couriers. Unfortunately, the report does not attach a percentage to their chart, but the 2007 number cannot be more than 1% of all couriers. I will now complement this analysis through the use of a dataset that is much narrower in focus and more tailored to my needs.

Figure 9
Messenger Courier Association of the Americas 2007 Survey Results



"2007 Industry Survey" Messenger and Courier Association of America.

2.3 A Geography of Bike Courier Firms

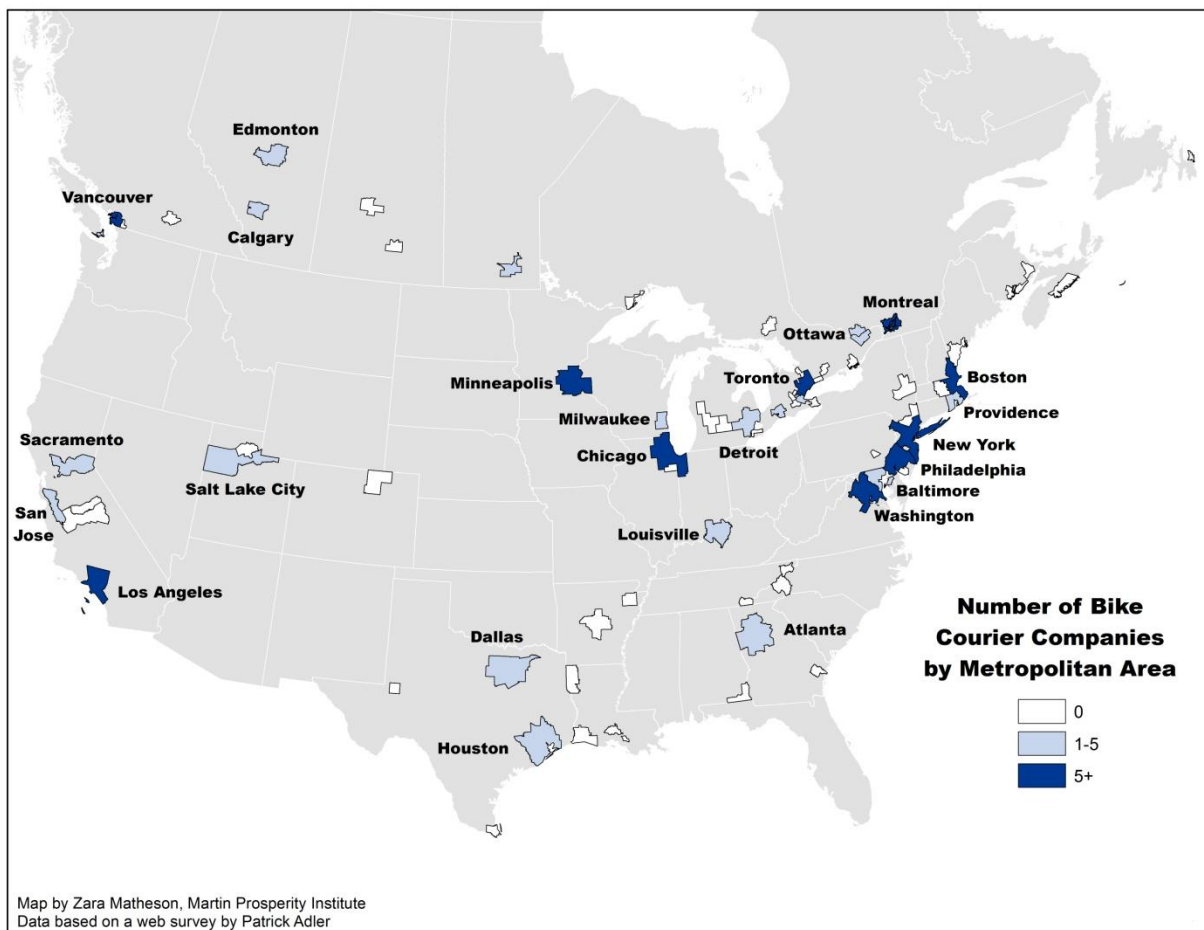
I have generated a custom dataset of the number of bicycle courier firms by metropolitan area for each city in the sample. Because this database has been generated virtually, it should be treated more as a proxy for the number of bike courier companies operating in each region, than a direct reflection of the number of bike courier firms. Any firm that advertised bike courier service in a city was counted in the survey. In addition, due to time constraints, I decided to stop counting the number of bike courier companies in a region after six were identified. As a result, the dataset does not support much comparison of regions with five or more bicycle courier companies. The focus of the description and analysis will be on contrasting regions without companies with those that have between one and five companies and regions that have five or more firms.

Figure 10 shows the physical distribution of bike courier companies among the sample cities. Four trends are apparent at this level of analysis. First and foremost, the category of places with more than five companies is populated by large, global cities. Ten cities (13% of the sample) were found to have more than five bike courier firms. Each of these register a 'score' of 1 or more on Beaverstock's (et al., 1999) global cities meta-table. New York has the highest score (15), followed by Los Angeles (12), Chicago (12), Toronto (10), Montreal (6), Vancouver, Philadelphia (2), Boston (2) Washington DC (1), Minneapolis (1).

Several global cities only register 1-5 bike courier companies. Houston registers three bike courier companies and appears in five of Beaverstock's cited articles; Detroit has three companies and one citation; Atlanta has one citation and one bike courier company. It would appear as though the very large 'alpha' and 'beta' level global cities are more likely to have more than five bike courier companies. Meanwhile, cities lower down on the "Roster of global cities" (ibid); seem to have a lower (but still detectable) level of bike courier service. One quarter of the sample has between one and five bike courier firms. Among these are some smaller places that would never be considered "global" at all, even by their local tourist boards. Among these are Winnipeg (2 companies), London ON (1), Salt Lake City (1), Hamilton (1) and Louisville (1).

Among the regions with no detected bike courier companies is Fresno - the region that had the highest location quotient for NAICS 4922. This serves as a very clear reminder that the geography of bike couriers is distinct from the geography of couriers in general. The overall distribution is an even more powerful reminder. While every region in the sample registered some courier employment, a full 61% of regions had no bicycle courier companies. Most of these places are small regions with populations between 100,000 and 500,000. Hamilton, London, and Victoria are the only regions with populations under 1,000,000 to have at least one company. Victoria is the only region with a population of less than 500,000 to have one.

Figure 10



In order to more precisely distinguish cities with no bike couriers from the rest, I calculated summary averages for metro areas in each class of city (See Figure 11). Some categories of regional characteristics seem to vary more across the courier firm classes than others. The level of urbanization varies the most. The average population, population density, and total employment in "5+" cities is around three times what it is in the "1-5" cities, and six times what it is in cities without bike couriers. This all supports the idea that bike courier service (if not courier service overall) is a feature available to firms in the largest cities.

There does appear to be an interesting national difference that is partially reflected by the summary statistics. There are seven Canadian cities in the 1-6 categories and none of these has a population above 2.4 million, the size average in this category. The same is true of Canadian cities in the 5+ category. If there is some sort of threshold of population, past which a region is expected to have a bike courier company, then it seems as though the threshold is lower in Canada than the United States.

Regions with more bike courier companies tend to perform better on indices of social tolerance and social mix than cities with less. They also have higher levels of post-industrialism, as measured by their occupational structure, human capital level and high tech industry LQ. Based on this, it is also no surprise that cities with more bike couriers do better on average wage and GDP per capita. What is slightly surprising is that there are 75% more patents per capita in the middle class of city (1-5 couriers) than cities with more than five couriers. The literature would probably not predict this. According to Florida's "3 T's" model of economic development (2008 et al., 2002) there is a significant and positive statistical relationship between tolerance, technology and creative class share on one hand, and the creative class and wages on the other. Of course, summary statistics alone do not establish whether these regional variables have a significant relationship with bike courier companies. Analysis of this comes through ordered logit regression.

Figure 11
Average Regional Characteristics by Courier Firm Class

	Metropolitan Areas With 5+ Bike Courier Companies	Metropolitan Areas With 1-5 Bike Courier Companies	Metropolitan Areas With 0 Bike Courier Companies
<i>Level of Urbanization</i>			
Population	7,088,650	2,467,403	318,927
Population Density (People Per KM)	644	257	130
Total Employment	3,371,268	1,152,246	146,399
<i>Economic Strength</i>			
GDP per Capita (In US Dollars)	75,690	61,473	58,359
Average Wage (In US Dollars)	49831	48954	38097
Patents Per Capita	2.4	4.2	1.2
<i>Level of Post-Industrialism</i>			
Creative Class Share (Of Workforce)	35%	32%	27%
High Tech Industry LQ	1.23	1.09	.633
Human Capital Share(Of Workforce)	20%	18%	13%
<i>Level of Social Tolerance</i>			
Gay Index	1.30	1.06	.89
Bohemian Index	1.50	.98	.67
Foreign Born Index	.23	.15	.10
<i>Climate</i>			
Mean High Temperature in January (F)	36.6	35.6	34.8

Ordered logit regression analysis allows for a researcher to explore the relationship between a continuous independent variable and more than two dependent variables. I performed a general logit regression (See Figure 12) to determine the overall relationship between two urbanization variables (Log Population, Log Population Density) and the presence of bike courier companies. As might be expected based on the summary statistics, the relationship is quite strong and very significant. Population density is demonstrated to have a slightly stronger relationship with bike courier companies than population.

Figure 12
Results for Ordered Logit Regression (Dependent= Bike Courier Firms)

<i>Log Population</i>	Coefficient	0**
	Z Score	4.07
	N	
<i>Log Population Density</i>	Coefficient	0**
	Z Score	4.92
	N	

The strong relationship between urbanization and bicycle courier firms is consistent with stories from the urbanization economies literature on specialization. Bicycle courier service is a much more specialized service than other delivery services such as a postal truck, a taxi, or a car courier. The range of items that can be carried on a bike is quite limited, compared to the competition. However, simultaneously, there are fewer impediments to traffic flow on a bike. I do not mean to pre-empt analysis in the next section, but suffice it to say, bike couriers do offer some unique functions to their clients. The availability of specialized services in large cities is said to improve the productivity of firms located there, because it allows for specific needs to be better matched to specific services.

For instance, if a client only seeks to deliver an envelope within the core of a city, then it is less efficient for her to send something by cube van than by bike. For one thing, the bike can move faster, for another it comes with lower variable and fixed costs (e.g. bikes are cheaper than cars and do not require gasoline). The availability of different services for different delivery needs is a boon for the cost and performance of services. Big regions seem to be providing a greater range of courier services, and thus a more productive delivery eco-system than smaller places.

Figure 13 shows the results of a marginal logit test analysis of the courier company data and regional factors. Again, the goal of this analysis is to determine how much explanatory value each regional variable adds to explaining where bike courier companies are. It works by modeling each of the variables simultaneously to see which variable helps to explain an outcome. It is worth pointing out that the statistical software package used to generate these statistics would not compute marginal effects when both population density and population were included. I chose population density as the urbanization variable, because it fared slightly better in the previous analysis.

No variable was found to significantly improve the chances that there would be more than five bike courier companies in a region - not even the log value for population density. Rather than reflecting on a real relationship (or lack thereof) this seems to indicate that the sample of 5+ cities is not large enough to generate significant results. The other two outcomes (1-5 bike courier companies and 0) were significantly related to the log of population density. Weaker population

density seems to influence lower amounts of bike courier companies in the metropolitan area, while the outcome of 1-5 companies is positive and significantly related to the number of bike courier firms.

Just as with the general courier industry analysis, there was no evidence for a significant relationship between post-industrial structure (Service Class, Creative Class, High Tech Q) and the presence of bike courier firms. A region's probability of registering bike courier firms is significantly related to its level of artistic (Bohemian) employment.

These results might resonate with Florida's (2002) finding that the presence of Bohemians suggests a regional atmosphere that is conducive to the existence of bike couriers. At the very least it indicates that certain non-size related conditions are related to the presence of bike firms. It is a non-size measure that can explain why some very big regions have less than 5 bike courier companies (e.g. Houston and Dallas), and why some very small regions also show up in this middle category. It might also explain why Canadian cities in bike regions are smaller across the board than American cities in these categories.

Figure 13
Results for Ordered Logit Regression - Marginal Effects (Dependent= Number of Bike Courier Firms in Each Category)

<i>Log Population Density</i>	Coefficient	.017*	.019*	.371
	Z Score	-2.38	2.34	.000
	N	43	18	10
<i>Creative Class Share</i>	Coefficient	.731	.731	.754
	Z Score	-.34	.34	.000
	N	43	18	10
<i>Service Class Share</i>	Coefficient	.732	.733	.735
	Z Score	-.34	.34	.000
	N	43	18	10
<i>Bohemian Index</i>	Coefficient	.019*	.020*	.387
	Z Score	-2.35	2.33	.000
	N	43	18	10
<i>High Tech LQ</i>	Coefficient	.506	.505	.611
	Z Score	.67	-.67	.000
	N	43	18	10
<i>Average Income</i>	Coefficient	.180	.181	.441
	Z Score	-1.34	1.34	.000
	N	43	18	10

* Significant at .05 level (2 Tailed)
** Significant at .01 level (2 Tailed)

Again, there is no evidence for a significant relationship between post-industrial structure (Service Class, Creative Class, and High Tech LQ) and the number of bike courier companies. A region's probability of having bike courier firms is shown to be significantly related to its level of artistic employment. From a mechanistic, utilitarian perspective this relationship does not make a lot of sense. One would think that the number of bike courier firms in a region would be more related to the presence of the creative class or high tech industry, because bike couriers would deliver more for workers that generate a lot of documents than artists.

If this finding does not establish that artists and couriers thrive in the same types of places (as I suggest above), it at least points to the importance of non-size related conditions in explaining bike courier geography.. There must be some factor(s) to explain why some very big cities only have between 1 and 5 bike courier companies, and why some much smaller

cities also show up in this middle category. On a related note, this might explain why Canadian Cities in the second two categories, are smaller across the board than American cities in these categories.

2.4 A Geography of Speed and Cost

The geography I will discuss might be awkwardly termed The 'Geography of Bike Courier Quality'. Based on a web and telephone survey of Bike Courier companies, I have been able to generate average speeds and costs for a standard delivery within the central city of a region's Central Business District. The average speed and cost for the fastest guaranteed shipments in the city are listed for each city in Figure 14. Two sets of rankings are displayed, one for each.

Before comparing regions across these dimensions, it is important to reflect on the general speed and cost levels for cities that offer bike courier service. The data suggests that there is a guaranteed speed of 95 minutes offered for shipments within the downtown core, along with a maximum cost of \$47. These numbers are harder to appreciate on their own so, it is worth asking what speed and cost quotes would be for next-day delivery. According to quotes I obtained from the Fed-Ex website, the universal rate for an overnight shipment is \$74 for a half pound envelope. The guaranteed time for this shipment is a range of eight and twenty-four hours. In other words the slowest bike courier in the sample is about 37% cheaper and between 5.3 and 16 times faster.

This testifies to a speed and cost premium for bike couriers over next day couriers and by extension a speed and cost premium for regions with access to bike courier networks when compared to regions with access to next-day service only. The extent to which same-day car and truck couriers can match bicycle couriers on speed and cost remains an open area of inquiry. However, as the next section will discuss, car couriers in the core district are at numerous competitive disadvantages compared to bike couriers.

Within the subset of bike courier cities, it is very difficult, by looking at Figure 14, to identify patterns. Unlike with the previous distributions, one cannot point to clusters of metropolitan areas that seem to share a characteristic (e.g. global city status, size, country). Los Angeles and Chicago, two global cities right next to each other in the urban size hierarchy, are on opposite ends of each other in terms of fastest time and lowest average cost. Someone might note this and suppose that some measure of density or congestion might be influencing the distribution of cities- why else would Los Angeles be the worst city? This seems improbable. The standard delivery takes place within the same zip code so the distance involved- even in a less dense city- is relatively small. Also the standard delivery has to take place by bicycle, meaning that gridlock and congestion are probably not factors (more on this in the next section).

Figure 14
Quality Rankings for Cities With Bike Couriers

Rank Time	Region	Average Fastest Time (In Minutes)	Region	Average Cost for Fastest Time (In Local Currency)	Rank Cost
T1	Detroit	15	Montreal	\$6	1
T1	Milwaukee	15	Victoria	\$9.6	2
3	Edmonton	20	Louisville	\$10	T3
4	Minneapolis	23.8	Salt Lake City	\$10	T3
5	Chicago	27	Toronto	\$11	5
T6	Providence	30	Houston	\$12	6
T6	San Jose	30	Chicago	\$12.26	7
8	Washington DC	35	Philadelphia	\$12.70	8
9	Philadelphia	38	Dallas	\$13.50	9
T10	Sacramento	45	Providence	\$12.70	10
T10	Baltimore	45	New York	\$14.4	11
12	Winnipeg	45	Milwaukee	\$15	12
T13	Ottawa	45	London	\$16	13
T13	Hamilton	45	Boston	\$18.05	14
15	New York	49	Detroit	\$18.50	15
16	Calgary	50	Winnipeg	\$19	16
17	Boston	52	Hamilton	\$20	T17
18	Montreal	55	Calgary	\$20	T18
T19	Dallas	60	Los Angeles	\$21.37	19
T19	London	60	Edmonton	\$22	T20
T19	Louisville	60	Vancouver	\$22	T20
T19	Vancouver	60	Minneapolis	\$23.54	22
23	Toronto	70	Ottawa	\$24	23
T24	Atlanta	75	San Jose	\$28	24
T24	Houston	75	Atlanta	\$36.15	25
T24	Salt Lake City	75	Washington DC	\$37.3	26
27	Victoria	89	Sacramento	\$47	T27
28	Los Angeles	95	Baltimore	\$47	T27

To determine the relationship between the quality variables and urbanization, I performed a bi-variate correlation analysis. Ordered-Logit analysis of this data was not performed because the previous analysis suggested that the dataset was too small to generate significant results. In order to get a sense of whether quality features were related to competition, I also

included a measure for the number of bike courier firms¹⁹. The results (Figure 15) yield no significant relationships between level of urbanization or number of bike courier companies, and the quality variables. The concept of "quality" itself appears, from the standpoint of this analysis, to be rather chaotic. There is no significant relationship between the two quality variables.

There are two ways to interpret the correlation results. The first is to accept them as a reflection of the world and to conclude that within the very small universe of bike messenger cities, there is little accounting for variations in quality. While I am tempted to endorse this view, I am actually more inclined to suspect that there is a relationship, but that my instruments were not sophisticated enough to pick it up. My selection of which bike courier companies to use in the "5+" cities, was driven by which companies I encountered first. I figured that this fairly random selection process would be appropriate. However, because I sampled courier companies that offer multiple modes of delivery, in addition to bike only companies, this might have introduced an unobservable bias into my results, whereby cities with more quoted bike-only firms did better than cities where less specialized firms were quoted. Put another way, the regional quality patterns might have to do with unobserved factors more than regional factors like size or the number of bike courier companies. A stratified sampling strategy would allow for a more satisfactory analysis.

Correlations

		Metro Pop	Speed	Cost	Bike Firms
Metro Pop	Pearson Correlation	1	.158	-.090	.442*
	Sig. (2-tailed)		.422	.648	.019
	N	28	28	28	28
Top Speed	Pearson Correlation	.158	1	-.179	-.105
	Sig. (2-tailed)	.422		.361	.595
	N	28	28	28	28
Cost- Top Speed	Pearson Correlation	-.090	-.179	1	-.054
	Sig. (2-tailed)	.648	.361		.783
	N	28	28	28	28
Bike Firms	Pearson Correlation	.442*	-.105	-.054	1
	Sig. (2-tailed)	.019	.595	.783	
	N	28	28	28	28

*. Correlation is significant at the 0.05 level (2-tailed).

¹⁹ Regions with more than five courier companies were assigned a 6 for this variable.

2.5 A Geography of Courier Service in North America

Courier service in North America appears to be more concentrated as it becomes more specialized. The geography of bike courier service appears to be significantly more concentrated than the geography of the industry as a whole. The wider same-day courier industry has at least some presence in each metropolitan studied.

There are some regions (e.g. Fresno) with especially high concentrations of courier industry employment, but for the most part LQs hover around 1- the LQ level that signifies 0 concentration. Simultaneously, the three largest cities in the sample had three of the largest LQs in courier services, suggesting that the industry might function more as a service to producers in these places than as a service to the local market. The geographic distribution of bike courier companies is much more concentrated in large, global cities than courier service as a whole and 62% of cities in the sample had no bike courier companies at all. This is also consistent with literature on producer services, which suggests that the geography of producer services is highly concentrated in large, global places.

A finding that comes out of a logit regression analysis is that the distribution of bike courier companies is related to the presence of a certain social group (artists) in addition to a region's level of urbanization. This possibly sheds some light on why some very large American cities (Houston, Atlanta) under-perform on the bike courier metric, while much smaller Canadian Cities seem to over-perform.

Finally, the discussion of quality indicates that the average delivery for bike courier service is better in terms of cost and speed than for overnight delivery. This is the clearest indication yet that bike courier service functions as an urbanization economy. Two features of urbanization economies are that they are un-priced and cannot be denied to actors in a city. The revelation that firms in the CBD of a bike city do not have to trade more money for faster speed suggests that its benefits are also unpriced. What's more, absent any distortions in terms of information or discrimination, any actor in the bike courier range can avail themselves of this benefit.

Chapter 3: The Value of Bike Courier Service

3.1 Introduction

This section explores the value of bike courier service over related services and technology. At bottom, the second research question seeks to understand how bike couriers in a global city may be affected by producer services growth or skill-based technical change: two processes that seem to oppose each other. There are many approaches to figuring out value - some heavily quantitative and restrained and others considerably more qualitative and speculative. The distinction between these approaches lies in how value is measured. I seek to capture value qualitatively- by understanding the precise *functions* that couriers perform, and then analyzing (whether these functions have viable substitutes. Knowing what items are delivered, who they are delivered for, and why they are delivered by courier puts me in a better position to understand whether bike couriers offer a unique value. The existence of bike couriers themselves (established in Question One) is a necessary but insufficient indicator of value. On one hand, the fact that bike couriers still operate - in the age of cheap servers and cloud computing,- indicates that they offer some extra value over digital substitutes. But as Autor (1998) points out, it often takes time for technological substitutes to be adopted, and different industries might adopt at different rates. This analysis seeks to better understand how much bike courier geography is a reflection of some unique value.

If courier clients realize a special value from bike couriers, then the existence of bike courier service in a place might constitute an urbanization economy or a part of a wider speed advantage for large places. Literature on urbanization economies has yet to discuss speed as such, even though it would seem to possess the main qualities of an urbanization economy. Rates of speed in a city are not excludable, and according to the urban metabolism literature, there are increasing marginal returns to speed (Bettencourt et al., 2007).

The literatures I have cited would suggest different answers to the second research question. Literature on both producer services and the service class chart the growth of these sectors over time (i.e. Florida, 2002; Sassen, 1991) in global cities and advanced economies. Bike Couriers, as service class workers (mostly) performing a producer service, would seem to be included. Stolarick and colleagues (2010) imply that the relative value of services has increased when they discuss how the service class in most industries has grown. Cowen (2011) charts how globalization has made the function of moving things around even more vital.

If the service growth narrative suggests that bike courier service might be increasing, then research on skills and labor market change points to the opposite conclusion. Bike courier service is a lower skill job, with what seems to be low demands for inductive reasoning. Like Mankiw (2006), Levy and Murnane (2004) would likely predict that it was vulnerable to substitution by technology. Others (Berman et al.; Johnson 1989) might predict that demand for couriers among high human capital intensive industries and occupations would drop, as they adopted more digital technologies. Then again, not all the skills literature points to this conclusion. Scott's O*NET study does conclude that large cities demand physical skills to help maintain their infrastructures.

This chapter tries to appreciate the relative value of bike courier services and also how this value is changing over time. The first section establishes that demand for bike courier service is declining overall even as overall demand for services increases. The rest of the chapter argues that bike courier service still offers unique value for many clients and in many circumstances. Section two discusses who tends to use the service, how they do so, and what ends up being couriered around. The third section tries to explore the unique advantages of the service, comparing it to digital and analog substitutes. By this point it should start to be clear why bike courier service is demonstrably cheaper and faster than next day delivery service for CBD deliveries. The fourth section attempts to link the value of bike couriers to clients, with regional advantage and productivity.

Bike courier service, it is ultimately argued, is both a declining and an important service in metropolitan areas. Even as technology renders many of its uses obsolete, there remain functions that cannot be substituted for. The value of bike courier service can be understood at a regional and a firm level; regions with access to this value can be expected to do better than regions without bike couriers.

3.2 Bike Couriers in Toronto: Decline or Fall?

I have already hinted that the bicycle courier portion of the courier industry has been contracting, and will begin with an elaboration of this story. The 2007 MCAA industry survey (Figure 9) shows that in three years, the share of bike courier employment in the industry declined from a tiny and observable wedge to a miniscule and hard to make out sliver. By the time that the 2010 survey was published (MCAA, 2010), the modal share of bike couriers was not even reported. Periodical articles across a wide range of regions have chronicled the decline of bike courier service (see for example Lomax 2011; Reisman, 2010; CBC, 2009; Fitzpatrick, 2008). In these articles the narrative is straightforward and consistent. Technological substitutes, which allow for instantaneous delivery of documents and media, have rendered courier service too slow and too expensive by comparison. As a result, employment of bike couriers is on the ebb.

Couriers and managers each confirmed to me that the level of bike courier employment has been declining significantly in Toronto over the last five years or so. Most couriers reported a decrease in total wages. Two said that they were making the same, but their living costs were increasing. One manager (Manager 2) characterized the current situation this way:

Concentrating on the downtown area I've been here since 1988, and in the downtown portion, which is the biker portion, I suppose when I got here it was about 15 [bike couriers employed at his firm] and it built up to a peak of about 30 in 2006 approximately and then started the decline, as you suggested maybe because of the emailing. So we are now sitting around the 24-25 mark, which is a decline of about 20% I'd say at this stage. It [the decline] still hasn't fizzled out as far as I could see.

Each of the managers reported that the recession acted as a catalyst for some firms to either adopt technology or embrace slower substitutes. Manager 1 elaborates:

Our retention for customers [during the recession] was probably pretty good but they all just shipped less because money was tight for them too. So instead of sending everything by courier maybe they mailed it or instead of sending it the same day they sent it overnight. Our revenues plummeted and not just with us but with my biggest rush competitor as well too. I'm on a friendly basis with him and we actually dropped the same amount %age-wise. Deliveries actually from 11 years ago were down about 50%. We used to do twice as many deliveries as we do now, but revenue-wise we're down about 30% because we raised the rates during that time.

It is worth considering if the contraction ever will fizzle out, or the decline of bike courier service in Toronto is really the first stage of its fall. My interviews with couriers, managers and most of all clients, has led me to conclude that the overall demand for bike couriers will not be dissipating completely any time soon. Manager 2 makes a historical comparison:

Do you know the buggy whip²⁰ story? When you do marketing in university, well I did anyway, there's always the 'buggy whip'. The 'buggy whip' was a booming industry in 1880, and as the car developed, so, that was the buggy whip story, why would you still develop? So the people who made the buggy whips, same thing here. There's still people making buggy whips, but it's just declined. So what we're trying to do, the strategy is be one of the last buggy whip manufacturers standing.

The last statistical section discussed how bike courier service represents a faster and less expensive service to its clients. The rest of this section draws on interviews with bike courier managers, clients, and bike couriers themselves, to argue that bike courier service does perform a unique and important role in the places it operates. The goal is to approach the question of value from the perspective of the client.

3.3 Delivery Functions and Clients

In spite of my ambitions (see Figure 5). I first began to understand who uses bike courier service in my interviews with the couriers themselves. Their responses were very similar both to each other and to the responses of the other groups. The most common response to the question "What kind of things do you deliver?" was either 'Envelopes with documents in them' or something similar. Based on the interviews, I can confidently say that a vast majority of bike deliveries made in the city of

²⁰ A buggy whip is a whip designed for horses in horse-drawn carriages.

Toronto are of this type. This makes sense. One of the identifiers of a bike courier is her "Messenger Bag", which is distinct from a backpack because it is oriented like an envelope.

Responses to the "What's inside the envelope?" question were also fairly standard. Although in many cases, envelopes are sealed and couriers do not know what is inside, couriers could confidently characterize what they delivered. Couriers regularly cited contracts, reports, presentations, invoices, and scripts as common items. A courier manager reported that his company had a special arrangement to courier admissions packets from a local university to local homes²¹. Couriers and managers also reported frequent transport of monetary instruments (Checks, Cash, T Bills), although the proliferation of online billing has apparently cut into this considerably.

Medical items were also frequently cited. No fewer than three couriers reported that they had transported boxes of dentures from the workshop to the dentist's office. Still others reported transporting X-Rays, blood, hemoglobin, or DNA samples back and forth from laboratories²².

Respondents also mentioned that they would occasionally have to deliver bulkier items that are harder to fit in a bag or even on a bike. Couriers reported that they would occasionally have to deliver gifts and flowers, which are harder to transport. Male Courier 1 sums up these less regular but more annoying deliveries:

We're delivering to law firms to banks, banks to law firms, architectural firms, print and design studios; sometimes we'd run stupid errands for people – I've taken coffee beans from Lansdowne and Bloor down to some chi-chi place at York and Adelaide – 10 lbs. of coffee beans on my back. The bullshit calls that I've delivered...often times you'd go and get a banker's box with some huge ass legal case that is in a banker's box. I'd stick it on my handlebars and ride very dangerously. I've delivered hundreds of those. Driving a banker's box – maybe even two – through the city...basically however you can strap shit to yourself – if you can go and make it work, you take it. I've delivered many flagpoles with heavy bases to the American Embassy. I've taken espresso machines that I've put in two garbage bags and tied it in a knot, and stuck my U-lock underneath the knot and the U-lock to my bag.

A few couriers also reported delivering items associated with the underground economy. For the most part, however, this was a matter of conjecture (or perhaps embellishment). However, one respondent reported that he works as a "bootlegger" now, transporting and selling black market alcohol. Male Courier 2 describes his experience this way:

You never know what you're doing but every once in a while they'll open stuff up in front of you. That's very common for that to happen. That was twice in a 15 year career that I've delivered drugs where they opened them up in front of me and started doing them. I've walked into places where they were doing drugs – I could smell them freebasing and smoking grass. I'm not going to judge. But it's nice to have the same courtesy shown back to you.

If the aforementioned items are still being circulated around the city via bicycle, then what items used to be couriered and are not anymore? Several managers reported that they have lost contracts with photography studios, now that it is much easier to transfer and store photographs online. All five law clients indicated that it has become easier to send some legal

²¹ He reported that deliveries within the 'Old City of Toronto' would be performed by bike couriers, while deliveries to newer, amalgamated parts of the city would go by car.

²² For a particularly entertaining account of this, see Appendix 4.

documents electronically, although the degree to which they emphasized this varied. The Lawyer I interviewed argued that many items could now be sent in an "unofficial" electronic form first, as long as a mailed form arrived by mail within a week.

Managers and Couriers said that most deliveries are conducted for regular business clients, and that one-off requests are rare. Both clients and couriers disclosed that it's common to build a relationship with a client, and to have weekly or even daily contact with some clients. As has been mentioned before, common clients are mostly drawn from producer service industries. Regular clients included law offices, real estate offices and financial institutions, and to a lesser extent educational institutions and multimedia companies. Deliveries direct to consumers were rare according to managers and couriers.

As might be expected, most bike courier deliveries take place in the denser (e.g. more urban) portion of the city. The most common delivery area is in Toronto's Central Business District, in between Queen Street and Lake Ontario. A majority of the remaining deliveries occur within the old City of Toronto. In most cases, deliveries are priced based on distance travelled. A delivery inside the Central Business District is the least expensive, while a delivery from the CBD to a newly amalgamated, suburban section of the city is the most expensive. The geography of Toronto's legal and financial industries likely has a dominant influence here- with most of these being clustered in the CBD.

How might the function of bike couriers be described in more formal terms? The list of common delivery items, clients, and delivery sites suggest that they perform several types of functions. The first of these is to deliver items that cannot be converted into binary code. Dental molds, blood samples, gifts and cash all share the basic quality that they cannot be scanned into a computer at their origin and then reconstituted at their destination. As adoption of digital technology spreads, and the ease of digitization improves, it would make sense for these items to make up a larger share of couriered items.

Couriers are also used to deliver items that could be digitized. In some cases sending an item by courier is cheaper than digitizing. A good example of this is the lawyers' boxes that Male Courier One cited. A box of legal documents probably contains thousands of pieces of paper that are arranged in their own packets and folders, and possibly marked up with notes. The cost of digitizing a box like this is prohibitive at least according to the Lawyer that I spoke to. It is cheaper in terms of human hours to pay for this to be couriered than it is to digitize it and re-organize it. For some clients, sending by courier (even items that could be e-mailed or uploaded to an FTP) is a habit that is hard to lose.

The most common function that bike couriers perform is the fast transfer of a signature from one place to another. Signatures on contracts, invoices, checks, and legal documents usually serve to make the documents that they sit on official. It is possible to overlook the importance of this function, simply because it is so simple. When bike couriers deliver and return documents, they are not simply transporting something, but rather processing a mere piece of paper into an item with legal consequence. They act as an important final step in the 'production' of official documents.

Couriers offer a symbolic or performative value for clients who want to emphasize the importance of the item being shipped. A law office sending a employment offer to a desirable client, or an architecture firm bidding on a contract, will sometimes take the personal nature of the delivery into account. As Levy and Murnane (2004) have pointed out, computer technology has a difficult time reproducing the symbolic value that personal service can offer.

The act of sending a person, and not an algorithm, to deliver something might also be considered in light of Storper and Venables' (2004) discussion of face-to face communication. A flesh and blood carrier of a message is much more a physical extension of the sender than an algorithm, and more conducive to the high trust relationships discussed in their piece. The courier delivery feels more personal, and thus safer than the e-mail or next day delivery. Courier senders can be sure that they are entrusting their material with one person and only for the duration of a delivery. E-mail senders, are releasing their material to a veritable black box, where they can be confident that no one else will see their material, and where the delivery itself has a signature that can remain for years. This sort of visceral security is rooted in a very physical and human type of delivery.

Courier deliveries are also laden with what can be called a "personal touch" or a charm. The courier comes with a human smile that is much more similar to the sender's than some digital emoticon²³. Couriers must rely on personal skills to make sure that items reach their destinations on time. Two of the legal messengers reported that they would sometimes have to charm a "5 pm" item into being accepted on time by the courthouse clerk. As Levy and Murnane (2004) point out, the social dimensions of courier work are hard to digitize. An emoticon is no substitute for a smile. Late e-mails cannot charm or fudge. Indeed as items with timestamps, e-mails probably act more to point out that they are late, than anything else. Bike couriers, meanwhile, are capable of building trust and affinity with their clients. University Office Manager 2 continues:

A: I'm quite happy with [my regular courier]. It's the same gentleman that usually comes and he's just so friendly. You get to know them and even at Christmas one year we gave him a gift – just a little box of chocolates just to show our appreciation. Once you have the same people all the time they're almost like family.

Q: Do you think that really helps the relationship you have with them?

A: Yes, especially if they're really nice – and he's very, very nice.

A final and less common function of bike couriers is to help bridge distances that the urban economy, by virtue of its land rents, has established. An establishment's location in the city is a reflection of both the price it is willing to pay for a given location, and the price it is able to pay. This suggests that firms with similar preferences for spaces, and similar budgets will tend to locate closer to each other²⁴. The Central Business District- home to a dense agglomeration of Advanced Producer Services- is an expression of this pattern. The dominant pattern of land uses is not helpful to establishments in an urban

²³ An emoticon is a digital symbol that is intended to mimic a facial expression (e.g. 😊)

²⁴ Zoning is another mechanism that tends to influence a clustering of similar firms.

economy that must trade with dissimilar establishments. For instance, the geography of dental offices is likely to be quite different from the geography of denture manufacturers. Bike couriers provide a service that overcomes the distance between them, allowing firms in a city to trade regularly with each other from a great distance apart.

A similar argument could be made about offices that divide "front office" and "back office" functions across the city. Couriers provide a service that allows for firms to decentralize their operations at the city scale, while still allowing them to transfer physical materials between sites. University Office Manager 1 belongs to a faculty that has several sites off campus. He reports that one third of deliveries originating in his office are bound for an off-campus, university affiliated office. I did not interview any law offices with a "front office"/ "back office" geographical division but I would expect for courier service to perform the same service for the legal industry.

3.4 Bike Couriers in Context

My review of bike courier functions establishes the advantage of bike courier service over technological delivery methods. There are still items that cannot be delivered digitally, and bike couriers perform this service. This analysis by itself does very little to establish the unique advantage of bike couriers over other types of services. I will do that now by calling attention to the unique speed and other advantages that bike couriers have over other same-day deliverers.

Almost all of the clients interviewed cited speed as the biggest advantage of bike courier service. In most cases the client has no power to request whether their same-day courier delivery is sent by a car or a bike. However the overwhelming perception was that bikers were used when speed was paramount. Law Office Manager 3 elaborates:

In the downtown courier – we try to avoid cars and the only time we'd ever use a car is if it's outside of [the] downtown zone. So if you have to go to Eglinton or North York or Mississauga or something. Bikes are the quickest.

The belief that bike couriers are the fastest couriers on the road was shared by each bicyclist I broached the subject with. Male Courier 4 puts it this way:

Even if you just pick routes and say stick to this route, a bike will always beat a car. Always. The stop, starts, flow – the traffic flow is completely different in a car. I drive a car at work right now and it's insane – I hate it. You get so impatient, you get angry. On a bicycle I used to treat it like a game. It was so easy.

There are several ways to account for the speed advantage for bike couriers in big cities, the first being their resilience to road congestion. On an open road, a bicyclist does not have a chance of outracing a car or truck. But unlike cars, bikes hardly ever encounter gridlock in cities. When the vehicle traffic flow stops, couriers like Male Courier 1 are still able to move in the spaces between vehicles. What's more, while cars do not have the visibility to run red lights and stop signs (even if they had the will), most bike couriers I spoke with consider running on a red to be a necessary part of their job.

Female Courier 2 notes,

It's a calculated thing for me to run a red light – I'm not just going to go. There are certain patterns in traffic that because I've been riding all day every day for the past four years I understand. I always expect the unexpected. It's the timing – I've got my timing down and so I know when that car is going to go and I have a space.

Bike couriers not only have the ability to go faster, and bend rules - they also have more of an incentive to do so than other same-day deliverers by virtue of their employment status. Employees who are not specialized couriers, and who must deliver something on an errand, are not paid by the delivery. Whether they are paid by the hour or paid a regular wage, their payment is not affected by how fast their delivery is. Almost all bike couriers in the city work as independent contractors and are paid by commission- meaning they have a monetary incentive to do as many runs as they can during the course of a day. Because there are usually no minimum commission guarantees for bike couriers, their cash returns to speed are even higher than for cab drivers.

A skeptic might note that bike couriers are marginally faster than car couriers and then ask if there is any economic benefit of this marginal speed. My discussions with courier clients and couriers indicate that clients often prefer for courier service to be done on an ASAP basis. The Lawyer and Male Courier 3 (who worked as a private courier for a law firm) described how it is standard for motions that need to be delivered to a courthouse by 5:00 pm to only be ready for delivery at 4:45, because the firm takes on as much work as it can handle at any given time. Within a window, especially this particular window, the difference between a courier that stops at lights and a courier that does not is very large indeed. Similarly, when large certified checks are in transit to the bank, the difference between getting them there before the branch closes and not, can be the equivalent of thousands of dollars in interest.

The law firm human resources manager made two very good points about the importance of speed. First, she notes that they send out their employment offers by courier because, in an effort to attract top talent, they don't want their packages to arrive later than their competitors. Her second point was that electronic communication has sped up the expectations of clients to the point where no turnaround time is short enough. According to her, the metabolism of commerce has been sped up:

I think generally all businesses now...years ago when you were given instructions over the telephone you weren't expected to start work on it until you got the materials in the mail. But now everything is so instant. The moment someone starts speaking to you they think that you're working on that project. We've moved from a more comfortable pace to an immediate pace and so that means that when you try to turn something around you've made unrealistic promises and there are unrealistic expectations at the other end. And I don't think it's just law firms, I think it's a product of technology.

According to this view, speed is a relative feature and not an absolute one. It is unacceptable for clients to get things slower than they have to.

Three of the five courier managers I spoke with mentioned reliability as an advantage of same-day couriers. Courier Manager 1 makes this point by contrasting same-day couriers with cabs- a service that is not specialized for delivery:

Offices don't use cabs because it's not as controlled or maybe regulated as it should be. Because sometimes I guess, the driver, because he's on piecework or whatever, he has a package and it's got to go to the airport, but if there's a guy on the street that has to go to Scarborough, he'll take the guy to Scarborough and then go to the airport. I guess it's been known to happen.

The notion that same-day couriers, particularly bike couriers, would be more trusted than cabs or next-day delivery services surprised me. Bike couriers, much more than any other type of deliverer, have the appearance of someone who is less professional. They do not have uniforms like next day delivery people, and they do not have a branded vehicle like cab drivers. Also, by the account of many couriers themselves, it is common for bike couriers to drink or use narcotics on the job (footnote this, just like the couriers that Fincham spoke with in the United Kingdom (2007²⁵). Even so by the account of clients and messengers, they are to be trusted. Male Courier 3 is able to communicate this in an unsettling way:

Messengers have a bad rap and people are always looking at them but realistically if you wanted to cause a problem, send a messenger in. Dress someone as a messenger and just walk in. Any one of us could blow up the American Embassy [Consulate] – no problem. Easy. You drive by it 100 times a day – you put 10 lbs. of plastique in your bag and drive by and boom – it's gone. You can drive right up on the sidewalk too.

For the most part, clients did not discuss bike courier appearance or demeanor, but rather their reliability in not losing packages. Several clients suggested that they trust same-day couriers with their packages more than next-day delivery service because their items are less likely to get lost. There is an organizational/logistical explanation for this. Next day delivery services work on a "hub and spoke" distribution system, where all packages are filtered to a central processing center before being sent to their destination. Same-day couriers operate on a point to point, or en route system, where the courier keeps all delivery items with her at all times. This means, there are fewer opportunities for an item to get lost. Law Office Manager 3, the same person who said that he prefers couriers in the core, characterizes next-day services bluntly "Purolator and UPS are good companies but tend to lose packages."

A final area of advantage for bike couriers is cost. When asked why they might prefer using a bike courier, the Architecture Firm Manager answered that it was cheaper because there was no fuel surcharge. This response resonated with me because, during my survey of courier companies across North America, I regularly encountered mentions of an extra fuel

²⁵ I would like to emphasize that there are many bike couriers who do not "use" on the job. If I had to guess, I would think that most people in my sample would not. Still, this is a widely reported trend generally and was discussed by three of respondents

surcharge for car and truck orders. This fuel surcharge is the equivalent of a tax on car courier service for the client. Four of the five courier managers mentioned "Sustainability" and "the Green Argument" as one of the ways that they marketed themselves. Courier Manager 1 even went so far as to setup a campaign where his customers could donate a small portion of every sale to 'helping the rainforest in Brazil'. None of the clients mentioned the environmental benefits of bike courier service, when they were asked what its advantages were. However, the cost of the fuel surcharges was mentioned by some.

In theory, the costs of maintaining a bike are also less than the costs of maintaining a car, suggesting that the price to the customer might be less expensive as well. However, because the courier industry is dominated by the independent contractor model and couriers are responsible for maintaining their own vehicles, there is no real mechanism for these savings to be passed on to the customer.

3.5 Translating Courier Value to the Regional Level

Can the value and marginal value of bike courier service be discussed in regional economic terms? Prior to now I have tried to do this by addressing the speed and cost advantages of bike courier service over next day service. I have argued that the speed and cost premiums for CBD delivery in bike courier cities, constituted an urbanization economy because it was an un-priced, non-excludable benefit available to firms in cities. The interviews suggest that cities with bike courier networks also have speed and cost advantages over cities with only automotive couriers. They also suggest trust, as an additional differentiator between same-day and next-day courier service.

An exclusive focus on urbanization economies and bike couriers might obscure other ways in which bike couriers provide regional value. It could also be said that bike courier service offers a way to circumvent what might be called "urbanization diseconomies". In addition to having higher rates of speed and innovation, large cities have also been shown to have higher rates of crime and gridlock and lower rates of marginal CO₂ pollution (Bettencourt et al. 2007). The findings here dovetail very nicely with this rather contradictory principal. On one hand, the bike courier is a mechanism that allows for cities to cope with the diseconomy of traffic congestion and gridlock- it allows for ideas and agreements to be circulated even when the road infrastructure is at capacity. In this way, couriers allow for the productivity of the city to improve, even though traffic seems to be placing natural limits on such growth. At the same time, the means of coping is almost carbon and pollution neutral. I am in no way suggesting that bike couriers are responsible for the size/productivity premium; I am only pointing out that in order to have higher productivity in the face of diseconomies, cities do need "fixes" like bike couriers.

The previous discussion might also add some clarity to standing discussions about the relationship between city size and urban speed. Bike couriers contribute to faster levels of general speed in the cities where they operate. Since bike courier

service tends to be found in the largest places, it appears to be another dimension of the large city/ speed relationship established elsewhere (Walmsley and Lewis, 1989; Wirtz and Ries, 1992; Levine and Norenzayan, 1999). Explanations for why large cities support faster walking pace (e.g. Higher wages, congestion of sidewalks) are clearly unable to account for why they can support bike courier service. It seems as though the ability for larger cities to offer more specialized services- an ability discussed in the urbanization economy literature Fujita and Thisse (1999) is more connected. The next chapter will speculate more on the role of local labor market conditions in generating this particular speed advantage.

Finally, it is possible to build a regional value argument, or even a regional competitive advantage argument, out of observations about common courier clients and functions. Many of the industrial sectors and clients cited in this section are ubiquitous across space. Once again, law offices are everywhere. They might be more concentrated in places like Toronto, where they act as producer services, but they are found in every metropolitan region. In much the same way, dentists are everywhere and clients in every city need custom dentures. In much the same way banks are in every metropolitan area, and large cashier's checks carry interest everywhere²⁶ the ubiquity of many occupations and industries that (might) demand bike courier service contrasts dramatically with the scarcity of bike couriers themselves. And if speed serves any function at all for clients elsewhere, then it would seem that a lawyer in Toronto is more productive than a lawyer in Barrie by virtue of her access to bike courier service. In other words, it would seem that bike couriers offer a competitive advantage to firms that locate near them. Bike courier service is a non-footloose, non –basic but heavily concentrated activity that serves to make firms more productive. It provides a regional asset to be exploited by firms – much like high human capital workers provide a productive asset that is exploited by firms.

This conclusion could be recast in the language of supply and demand. The concentrated geography of bike courier firms might be read as an indication that demand for bike courier service only exists in places where there is a corresponding supply. But this chapter has cast some doubt on this explanation. We might expect for cities like Atlanta and Houston, which under-performed in terms of bike couriers, to require fast check cashing and 5:00 rush jobs as much as similarly sized cities with more bike couriers. By the same token, we would probably reject the premise that Canadian regions have more need for these services than large American cities do. This suggests that certain supply conditions might be influencing bike courier geography. Now I will consider how labor supply might be complicit in accounting for the geography of bike couriers.

²⁶ It is true that bank headquarters and the largest law firms are more concentrated. There are still a lot of industries and occupations that exist across the city system- my point here is that they might be more productive in some places than others.

Chapter 4: The Bike Courier Labor Market in Toronto

4.1 Introduction

The idea that precarious workers have little to no autonomy over their employment conditions seems to underlie much of the extant literature (e.g. Florida, 2002; Austrin, 1991; Sassen-Koob, 1984). This seems particularly true in the literature on precariousness in low-wage, low-skill, "service class" occupations. Undesirable terms of work are assumed to be the product of a skewed power relationship that allows employers to dictate these. Put more directly, service workers are assumed to not have 'much of a choice' over the job they get to work at or the terms of their work. Within this framework, the notion that service class workers can be proactively loyal to their occupations or employers seems dissonant.

This chapter considers the seemingly paradoxical concept of service class loyalty through a case study of Toronto's bike courier labor market. On one hand, bike couriers are employed in a highly contingent and precarious manner. Material benefits are low and all costs of doing the job are shouldered by couriers themselves. In spite of this, the couriers report high levels of satisfaction with their work that translate into high levels of loyalty. Most couriers characterize their job as desirable, and are willing to accept lower and lower material rewards to stay in the labor market. They also report anxiety about leaving the labor market, and seem very likely to return once they have left. This article discusses the non-material benefits (e.g. recreation, collective identity, health) that seem to explain courier loyalty. It then contrasts bike couriers with the wider service class, proposing that couriers are a useful model for service work. I have already reviewed two strands of literature which suggest that the terms of work structuring service class work in cities are poor. Literature on the Global City describes it as a site where high rates of immigration drive lower wages by expanding the labor supply (McDowell et al., 2009; Friedmann, 2002; Sassen, 1991). Work focusing on low-end workers in Global Cities (e.g. Walks, 2001; O'Laughlin, 1996; Sassen-Koob, 1984) demonstrates that they are deployed in highly flexible, informal ways. Similarly the a-spatial work on flexibility and precariousness, suggests that low skilled "service class" work is subject to the most precariousness (Kalleberg, 2000), although Ross (2008) points out that there are key exceptions to this.

An additional area of study, which has not been cited before now, is concerned with how intrinsic rewards- that is the emotional returns associated with doing certain types of work. A worker's ability to derive non-monetary intrinsic rewards (i.e. stimulation, satisfaction, pride, personal development) from their work appears to be a significant determinant of overall job satisfaction. In a study of the Quality of Employment Survey, Kalleberg (1977) finds that the intrinsic rewards correlate most strongly with job satisfaction - outperforming other variables such as wage, advancement potential, convenience, and ability to form social relationships with co-workers.

Amible (1983) argues that the extent, to which intrinsic rewards affect job performance, depends on the type of task being performed. For non-creative jobs, "algorithmic", external motivations do not hinder performance and intrinsic motivations generally do not help it. But for tasks that require creativity, the presence of extrinsic motivations hinder performance, while intrinsic motivations improve it. Florida (2002) translates this finding into occupational terms, saying that creative people (a designation that is mostly occupational) are "largely driven by intrinsic rewards" (p.34). Stern (2004) finds evidence that creative workers will actually trade intrinsic rewards for extrinsic ones. He notes that scientists who are able to publish receive 25% lower wages than their peers who do not publish.²⁷

What are the levels of intrinsic rewards for service workers? According to the literature cited to this point, service work, which is generally more routinized, offers fewer intrinsic rewards to its workers. Two case studies suggest that intrinsic rewards are available to workers in some areas of the Service Class. In a study of cocktail chefs Ocejo (2011) observes that cocktail bartenders are a very small subset of servers, who are motivated by intrinsic rewards. Fincham (2006) finds that Bike Couriers in the United Kingdom are drawn to the intrinsic enjoyment of the job, and also the ability to join a subculture that is positioned outside of the mainstream. Even Florida cites hair dressing as a job with high intrinsic rewards such as the opportunity to make creative decisions and to receive instant gratification for the results of good work (2002). These examples show that routinized and lower skill jobs *can* still be fulfilling, but none of these authors generalize their findings in a particular service class job to other jobs. In fact, these might be considered exceptions that prove the rule. My research on Toronto's bike couriers echoes Fincham (2007) in suggesting that bike couriers derive intrinsic rewards from their lower-skilled, rote profession. It turns out that their profession, which has very low barriers to entry and very poor formal terms of work, inspires a high degree of satisfaction and loyalty. I propose that the joy derived from performing bike courier deliveries and being a part of the courier community is responsible for this satisfaction. Even though most couriers are confined to the low-income portion of the labor market because they cannot access higher paying jobs, they are unusually attached to their specific profession.

This section begins by discussing the wages and precariousness that structure this labor market. It then turns to a discussion of why bike couriers in Toronto accept their precarious terms of work, and continue to stay in the labor market even as terms of work worsen. I propose that the intrinsic rewards observed in studies by Ocejo (2011), Fincham (2007), Stern (2004) and Kalleberg (1997) act as a hidden currency in the labor market. I also propose that the bike courier community (and by extension the city of Toronto) helps to mitigate against risk and precariousness. Ultimately, my argument is that these non-economic factors play an important role in facilitating a large, flexible supply of bike couriers in Toronto.

²⁷ Stern finds that this result is contingent on scientific ability, and is more pronounced among high skill scientists.

4.2 The Independent Contractor Model

Almost every bike courier in my sample is employed (or was most recently employed) as an independent contractor (IC). Only three couriers (Female Courier 3, Male Courier 3, and Male Courier 6) are employees currently- and each of these is technically a process server²⁸. Work by Cohany (1998) suggests that the finding for most couriers is rare, for service workers in general and that independent contracting (if not other forms of flexible labor) is more common among the creative class.

The formal terms that structure this relationship are recognizable to anyone who has read the precariousness and flexibility literatures. I will describe these as if they apply to most bike couriers in Toronto. I have received every indication that they do. IC Couriers are paid by commissions which range from between 50% and 65% of the pretax value of an order. They do not collect any benefits, and they do not have any %age of their paycheck deducted for taxes because they are assumed to file taxes on their own.

By virtue of their status, bike couriers in Toronto are not entitled to any equipment. In most cases they must provide their own bicycles, bags and other supplies. Couriers are responsible for repairing all damaged equipment even if it is damaged during the course of a delivery. Communication about orders is done via a two-way radio system, which is almost always rented from the company by the courier.

Because firms do not assume any fixed costs for labor, and because few skills are required to be a courier, the courier company can hire aggressively, and employ their workers at less capacity. Each courier reported that they had no problem getting a job in the industry²⁹, although getting a job at an established, busier firm was difficult. I asked Male Courier 1 about ease of accessing the labor market:

Q: I've heard it described as if you have legs and a bike you can get hired.

A: You can get hired anywhere if you have a bag and a bicycle. You don't even need legs. There is one guy that had one leg. There was one guy that was a friend of mine and he had little flippers for arms. You don't even need that much to be a bike messenger. Thank God for this job. It's like MacDonald's – they'll hire anybody.

The ease of entering the labor market means that couriers are often in competition with each other for a declining amount of jobs. For this reason, most couriers I spoke with said that their wages improved in the Toronto winter, when there

²⁸ Like bike couriers, these process servers spend most of their work lives ferrying items back and forth on a bike. The only difference is that they can also perform basic legal support functions like notarizing, or serving notice of a lawsuit. Process server jobs are highly sought after.

²⁹ In addition, each of the courier companies I interviewed reported that they had no trouble finding workers

were fewer people willing to work as couriers. Absent a restriction on the labor force like the Canadian Winter, there is almost nothing to control labor market size or to ensure that couriers have a comfortable amount of work.

For the most part, bike couriers must assume personal responsibility for their own safety. If a cyclist is injured on the job, they must apply for relief from the Workplace Safety and Insurance Board, which manages an insurance fund that employers are supposed to pay into. Each firm claimed to pay into it, although several suggested that this is not a universal practice. Female Courier 3 echoes this:

I know some companies have paid for their courier to be off work and basically paid them out of pocket so they don't claim. Any time there's any sort of traffic accident then you can go and sue the person and claim damages against them. It's really everybody's choice whether they want to do that or not. Basically that's what's left to do. But if I'm riding the wrong way down a one-way street and somebody hits me, I'm fucked because I was breaking the law.

Male Courier 6 corroborates:

One company I worked for will pay \$80 a day to keep your mouth shut and not go to WSIB. Half the time it's all on you. Thank God I live in Canada and so we have that option. Whenever I go to the States and I hear horror stories – getting billed for – like they thought they broke their hand but they strained something, but the hospital bill. But still if you get laid-up you're out of a job.

These instances point to a natural tendency for bike courier work to be unstructured. Even the most loose (and irregular) of arrangements seems to be under pressure to bend. For Male Courier 6 it is the healthcare system generally and not any sort of labor market-specific institution, that he relies on in contingencies. And this is absent in the American context. In addition, courier companies are not obligated to pay injured workers, who are forced to take time off of work. Just as Kalleberg (2000) observed with chemical plant workers, bike couriers are not instructed on safe practices by the firms that contract with them.

Couriers are not given favorable terms over their schedule. They are not entitled to vacation pay or sick leave, and must negotiate time off with their manager or dispatcher. There is also substantially less flexibility over the daily work schedule than it might first appear. When there are no deliveries to make, couriers have freedom to do what they want. And while they cannot technically be forced to take on jobs when things are busy, it is hard to resist the pressures to do so. Male Courier 6 elaborates:

That's the thing, you can't really say no because that's your bread-and-butter. If you were sent something you just have to make it work. I was working for years 10 hours a day and just hustled – 8 a.m. to 6 p.m. – hustle, hustle, and hustle. You get everything done as quickly as possible so you can take more on and so you're making more money.

This describes a common dilemma for bike couriers that transcends autonomy over the work day. Because they are paid by the piece, they are incentivized to make choices that they might never make as formal employees. In Appendix 4, we

see that what couriers carry around (e.g. morphine) often times can be dangerous. Male Courier 1, the same respondent that described moving the banker's boxes and coffee beans, explains why bike couriers end up delivering items that are not suited for their vehicles.

Q: Have you ever had to say no?

A: Yes. They hate when you do that. It wasn't until we started cooperating with a car company to be able to pass those calls off, that it stopped being such an issue. Occasionally you'd waste all this fucking energy going to a call – maybe it's way out of way and the client hasn't written a note that it's a huge-ass box – you ordered a bike courier – who's going to carry this? But you do your best to do it anyway because otherwise you get nothing for all that time you worked.

Because couriers are paid on commission they have also been directly exposed to the declining demand for bike courier service. Most bike couriers report that they have been paid less in real income (wages- living costs), since the 2008 recession began. This is partially due to lower demand for the service during the recession, but also due to deflation in courier prices. Several law firms reported that they were able to negotiate nominal courier prices downwards, during the recession. Law Firm Office Manager 2 describes this process to me:

Q: How do you characterize the prices now versus five years ago versus one year ago for same-day couriers?

A1: It's a little cheaper. We brought them down about 15%. It's a cutthroat industry, especially in the downtown core here because there are just so many people going for a piece of the pie that it can be a little more competitive with some companies.

Q: the level of service, has that dropped off at all – like the speed at which stuff is getting delivered for 15% less...is it 15% slower?

A1: No.

Q: Same level of service?

A1: Yes.

Courier Owner 1 reported that the recession forced his company to make unilateral concessions to their clients. In order to offset these costs, he said that his company dropped their commission from 65% to 60% for new couriers in response to the recession. Consequently couriers at his firms were making a lower %age on a fewer orders. Most current couriers I spoke to reported average daily incomes in the range of between \$60 and \$100. Since most work a typical business day (without lunch), this works out to be between eight and fourteen dollars an hour, or in other words less than minimum wage or forty percent above it. For most, a \$100 day was a rare but not unheard of income for a day.

Based on the overall terms of work for couriers, it is hard to deny the industry is very cutthroat. Couriers receive almost none of the benefits or stability that formal employees do, and they have considerable less control than it might first appear. There are still some features of the job that are appealing to workers that value freedom and autonomy. Couriers plan their own routes, and decide for themselves the sequence of less urgent packages. In fact it is fair to say that couriers are free from supervision in how they perform their job. It is fair to say that a culture of drinking and using drugs on the job could not

be supported if managers and couriers were proximate to each other. Courier Owner 2, whose office is located outside of the downtown core, reports that he never meets most of his riders after he hires them.

Yeah if they bike all the way up here I might just give him \$25 for his troubles. But it's very seldom, so you meet the guy the one time, and then he's running his own business

The independent contractor status for couriers is regularly contested by couriers themselves, managers and organized labor. Ambiguity over what an independent contractor is, and is entitled to, is itself a feature of a precarious line of work- an additional source of instability that casts doubt on even the simplest of worker guarantees. Appendix 2, a memo from the MCAA to members, demonstrates how courier companies are very active in defining what an independent contractor is.

4.3 Intrinsic Rewards

Given the poor terms of work for couriers, one might predict that levels of job satisfaction are quite low, and also that the job acted as a job of last resort for its workforce. If this is true generally of precarious work, then bike couriers are outliers. Most respondents reported satisfaction with their work and not just because it was preferable to no work. This resonates with Cohany's (1984) finding that 84% of independent contractors are satisfied with their job. Male Courier 1 resolves it this way:

Q: Obviously some people don't have a lot of education or are new to the city, but is that the big reason why people still find themselves doing this job, or is it wanting to ride a bike, the community?

A: All of that. There are so many variables. You just get addicted to moving. When I think of how much of this city I hold in my hand...for not being someone who was born and raised here, it's just ridiculous. I can just be like pick a general direction and go and weave my way through tons of streets...I get to Rosedale like that.

The idea that bike couriers actually do enjoy their jobs is corroborated by a few other trends with my sample. First, on average the bike couriers I spoke with had worked for 3.4 companies per person, and some had worked for as many as 10. If the occupation was not satisfying, or if it was simply an easy job to get, then we wouldn't expect for couriers to be re-employed in the same occupation over and over again. There are, after all other low-end jobs in the workforce. Four of the people in my sample have left the courier labor force at some point, but three of them have returned to the profession at least once. Bike couriers reported that the precariousness of the job was difficult, and occasionally they quit to find something stable. Often, however, these were outweighed by other factors, namely the appeal of the job itself and the appeal of the courier community.

Courier managers seem to understand that their bicyclists are not in the job because it is stable or well paying. Courier Owner 1 betrayed this when asked if his bicyclists like their job:

Yes absolutely. They like riding and maybe they like it here [at the company] – I'd be guessing – I wish they could earn more. This isn't an industry where you make a lot of money.

Like Male Courier 1, most couriers reported that they found the act of delivering things around the city to be enjoyable. This finding was consistent with Fincham's UK study; although I believe I have isolated more of the reasons why. Part of this seems to be related to the sensory experience the experience of moving so quickly through space, for so long. It was common to hear the sensation of being a courier compared to being in a videogame. All but one of my respondents said that they were interested in bikes before they began working as a courier.

Most of the couriers I spoke to ride bikes recreationally as well as professionally. Male Courier 4 is a regular participant in unsanctioned bike races that the courier community will sponsor from time to time, called "Alley Cats". The premise of these races is to simulate a demanding bike messenger run, or put differently, the premise of this recreational activity is for couriers to do exactly what they do during their work days. The literature on intrinsic rewards (i.e. Stern, 2004; Kalleberg, 1977) tends to focus on knowledge and creative jobs, but it is hard to imagine doctors or even scientists recreating in such a "professional" way.

The idea that couriers, as low wage marginalized workers, were performing important tasks was also cited with a degree of satisfaction.

Anybody could walk into a courier office and say I need a job and the first job you'll get is "go pick up this check for this house" – like \$3 million. I once picked up a \$5 million certified check – it wasn't even sealed. I opened it up. I felt the color drain from my face. It's not like you can do anything with a certified check. But it's just the knowledge.

Male Courier 1 continues:

I've delivered packages to kings and captains of industry to their castles far away. It's a weird life.

Finally Female Courier 2 discusses how couriers are an unappreciated and important economic group:

It's one of those things where we're not getting any respect and we should be getting some respect because what a lot of these corporate guys don't get is that we're a cog in this corporate machine of commerce just as much as everybody sitting in a cubicle is – but we're out doing the grunt-work.

Bike couriers also appreciate that the job gives them opportunities to express themselves. Three couriers mentioned that a lot of people who worked as couriers for a living also had artistic jobs on the side. As an aside, this finding is very significant in relation to the logit regression results from the first section. It further suggests that the supply of bike couriers might be influenced by a regional atmosphere conducive to artists. It also suggests a less nebulous connection between courier work and arts.

A final source of satisfaction had to do with the ability to get physical stimulation from work. The couriers marveled at the sheer amount of calories they consumed when they were working, and the manner in which their bodies were reshaped by

the job. But the courier's body is not sacred either. Several couriers indicated that the members of the community with the most respect were those who could achieve high levels of physical performance while also being at the height of inebriation.

The courier interviews corroborated Fincham's (2007) observation, that bike couriers form an entire sub-culture of their own. It is hard to exist in the courier world without considering issues of symbolism, identity and community. For instance most couriers reported that they knew most bike couriers in the city, and also that they could recognize their bikes. All but one of the couriers reported that they had at some point lived with another courier. Most claim to socialize exclusively with other couriers, because couriers are the only ones that understand them. Female Courier 1 notes:

A lot of people do [socialize with each other]. Even the people that aren't necessarily friends, there's kind of like an understanding between people because they're all out there doing the same thing. I'll see people day-in and day-out and you don't necessarily sit and have conversations with everybody but a lot of people nod their head or wave to you because we're all doing the same thing, we know what it's like. You understand what it's like to race against time and weave through traffic and run a red light, run from the cops.

There is, naturally, a less cheery dimension to a strong courier sub-culture. The constitution of Toronto's courier community seems to involve defining who is not a courier as much as who is one. In my interviews, it was clear that some who might describe themselves as couriers might not be accepted by the core courier community. Most couriers reported they were not accepted by the wider community when they first began in the industry. As courier related products, like messenger bags and fixed gear bicycles, have gained appreciation among non-couriers, they have earned the scorn of the messenger community. The shorthand for those that merely appear to be couriers is "hipster", as in "The fixed gear now is for hipster doofuses that want to be cool and ride a fixed wheel" (Interview, Male Courier 2). But even those who have been couriers for a long time can be marginalized. One older courier (Male Courier 5) who does not socialize or identify with the wider community noted that he is an outsider to the subculture:

There is a subculture. I'm trying to get back into it in a way. It makes me sad at times that I'm not in it. I'm not "in". I'm not quite clicking or belonging. The couriers that I'm clicking with are those....I'll sit down with some of the couriers and they know – and if they don't already know they'll figure out pretty quickly – that I'm not one that tends to criticize that much. I won't put down other people. Other couriers do get a kick out of it. But there is a subculture.

The rest of the courier respondents were not nearly as isolated. For most, the occupational status of "Bike Courier" not only influences the type of material life that they have, but also their personal identity and their social status. In general the boundaries between occupation and lifestyle are blurred. On one hand, it is accepted practice that couriers consume alcohol during the workday. On the other hand the "workday" inspires and structures weekend alley cat races. Given the powerful influence that occupation has in couriers' life, it is maybe not surprising that they report anxiety about leaving the profession.

Each of the respondents who have left and come back said that they feared losing their social standing, by virtue of not being couriers anymore. Even if this is fear is unfounded, the paranoia might help to explain why there is so much re-entry into the labor market, and so much circulation between firms.

In conjunction with the intrinsic rewards of the work, courier subculture might help to explain why workers accept precarious (and increasingly precarious) official terms of work. It would seem that bike couriers pay to be bike couriers in the same way that scientists pay to be scientists (Stern, 2004). Since couriers exist much lower down on the income distribution, the long-term viability of the profession could be called into question.

4.4 Coping with Precariousness

Toronto's vibrant local bike courier community not only supports the social life of couriers, but allows them to better deal with the precariousness of work. Because courier income varies seasonally and according to demand, it is sometimes difficult for couriers to purchase the bike parts and service that they rely on to ply their trade. In Toronto, several courier friendly bike shops allow for couriers to pay later for parts and labor and also provide discounts for couriers. Couriers also reported that they would trade parts and services with each other as a way of keeping costs down.

Scheduling is a key area that the courier community has sought to normalize. For instance community deals with the lack of vacation days and time off through informal work arrangements. Female Courier 3 elaborates.

One of the things I remember about working was that...there was never this idea of a vacation. You don't get vacations – you just don't show up for work. What messengers would do is they'd get a messenger not working to cover for them when they would go away. So you would be responsible...it would just be to keep your job, because if you left for 2 weeks you wouldn't have a job when you came back. It was kind of like a place-holder. So if you could find a decent guy who could cover for you for two weeks then you'd be okay. There were a couple of those guys that would work steady just covering for people all the time.

So just as firms in the Post-Industrial mold deploy flexible labor to improve productivity, the courier community deploys flexible labor of its own to help cope with the precariousness of contract work. In addition, two couriers referenced an informal "sub-sub contracting" market where couriers with too much work at one company could send jobs to couriers who have too little.

The threat of injury on the job is another dangerous prospect and not just from the standpoint of bodily harm. Couriers who have to miss work due to a work injury can apply for short-term support from the international Bike Messenger Emergency Fund. Occasionally the community will support local couriers who get hurt by hosting a benefit on their behalf. AlleyCat races are often used for benefit purposes. The revelation that couriers live together is another indication that they cooperate to offset risk in their professional lives.

Couriers also seem to organize on a transnational basis to support their work. The Bike Messenger Emergency Fund operates internationally. In addition, a former courier from Toronto, Joe Hendry, runs a free web service called the Messenger Center for Media Accuracy, which collects and curates links related to courier work internationally. The site is a thorough collection of links about bike couriers and its listserve is an important channel of communication for the global messenger community. In my interviews, the transnational effort that was most widely cited was the Cycle Messenger World Championships- a hybrid courier Olympics and courier convention, organized by an international board of volunteers from bike communities worldwide. Each year's championships are sponsored by a local bike community that has applied to host them. Male Courier 2 conveys the importance of the event and also describes the opportunities that it opens up:

Once the World Messenger Championship started happening a lot of people started making more and more connections in different cities, so pretty much any messenger on the globe can go to any city where there's a half-decent sized community and pick up work – under the table – and you'll have a place to stay. You're billeted – it's a neat little brotherhood thing. I've taken advantage of that all across the States, throughout Europe. I haven't gone down to Mexico but I know there's stuff in Mexico City I can get into. They had the world championships in Guatemala last year during the mud slides, and a lot of the messengers flew in to Guatemala City that day and had to wade through hip-deep mud.

It is worth re-iterating how informal the messenger championships are. Unlike other professional conferences which tend to have organizational and economic support from industry, these are setup exclusively by couriers and planned for the most part by the host community.

Each informal institutional arrangements are undoubtedly very helpful to the Toronto courier community, but it would be a mistake to see them as fully exportable. They depend on a critical mass of bike couriers, who can perform all of these voluntary functions. A labor market of twenty, as is found in Ottawa, would likely not be big enough to perform these community services. They also depend on a larger enough city with, for instance, enough specialization in bike shops and apartment stock. Thinking back to the geography of bike courier service in North America, it is possible that part of the large city bias in courier service has to do with the ability of large cities to offset risk, and support employment at wage levels that might not be sustainable on their own. A large enough courier community to provide couriers with validation and identity, is another feature that keeps couriers in the labor market, we might expect this to also be related to size.

Chapter 5: Service Infrastructure and Economic Development

Bike courier service has very few of the traditional characteristics of traditional economic development targets. It is a non-basic, non-footloose service that cannot be uprooted from one region and dropped down in another one. It commands an infinitesimal share of the national workforce and national gross domestic product. It is not human capital intensive at all, and its workers are not engaged in highly valorized creative occupations.

Perhaps the only characteristic that bike courier service shares with traditionally prized activities is that it is concentrated across space. Bike courier service belongs to a same-day courier industry that is actually fairly evenly distributed spatially, but also dominant in global cities- where other producer services are thought to cluster. I have suggested that the producer oriented portion of courier service is even more clustered in these big connected agglomerations. Bike courier firms themselves are shown to be incredibly concentrated. In a sample of metropolitan areas that has been weighted towards the biggest places a full 61% of metros had no detectable bike courier companies. The preceding analysis suggests that this geographic feature might not be entirely coincidental.

The work of the urban metabolism literature has established the tendency for cities to be faster and more productive as they become larger. This study has suggested that the ability to get goods and ideas around a central city in the matter of 90 minutes might be a mechanism for both speed and productivity advantages, and that certain types of work may be involved. By establishing that bike courier service is also cheaper than its substitutes, it has also compared bike courier networks to the urbanization economies that are supposed to underlie agglomeration in global cities.

Bike courier service also seems to offer advantages to the region that cannot be observed statistically. Specifically it gives local firms the ability to overcome barriers of distance by allowing non digital items to be delivered quickly and by providing a more trusted and personal delivery system than is available from most competitors. Finally, it allows for large regions to quickly circulate small packages even when their roads become more congested.

If bike courier service provides a foundation for global city productivity, then this study makes an early effort to understand the preconditions of bike courier service. A powerful if extremely frustrating factor is regional size. No single factor got closer to accounting for bike courier service statistically than measures of urbanization. Still, the fact that some very large cities (i.e. Houston, Dallas, and Atlanta) are underrepresented in terms of bike courier employment, while much smaller Canadian cities are over-represented- suggests that non-size factors are at work. This study has identified two factors that might work to increase the supply of bike couriers, and possibly lower wages to the level of equilibrium.

The significant relationship between bohemian occupation share and the presence of bike courier firms suggests that a certain regional social mix maybe be supportive of bike couriers. This finding is supported by interviews with couriers, which establish that many bike couriers are also artists. Most couriers in the bike messenger sample were born away from Toronto, suggesting that this correlation might be related to courier-oriented or bohemian oriented migration preferences. The messy connection between identity and occupation in the bike courier community, casts doubt on the "job-led" and "people-led" dichotomy that has been identified in human capital migration literature.

Interviews with bike couriers, and to lesser extent courier managers, suggest that non-monetary benefits might act as supplemental compensation for bike couriers that makes a labor market for bike couriers tenable. In the same way that scientists (and artists) have been observed to forego income for recognition, bike couriers accept sub-minimum wage pay in exchange for a job that is physically, emotionally, and socially fulfilling. In addition to providing these benefits, courier communities also act to regulate and make more manageable the terms of bike courier employment. These community advantages are proposed to be related to be made possible by a critical mass of bike couriers. In other word some of the social conditions that allow for the courier market to exist are related to city size.

This study suggests that the efficiency of producer service firms is improved in areas with bike couriers. Bike couriers provide an unusual and valuable type of infrastructure to human capital and traded industries. A lawyer in a bike courier city is more productive than a lawyer somewhere else, all else equal. Competitive regional advantage can therefore be forged by sectors that do not bring in money from outside the region. The ability for some cities to outcompete others can be rooted in a greater efficiency of reproduction- an efficiency that allows for its basic industries and human capital workers to be more effective at their job. Furthermore, I have demonstrated that the source of this advantage is in urban scale and possibly a conducive social atmosphere.

At a larger level, all of this implies that the non-basic, non-traded service sector can still be a source of regional economic advantage. There was once a time when cities near hard physical infrastructure (railroads, ports, canals) grew because they could leverage that infrastructure into greater productivity (Hall, 1998; Jacobs,1969) Perhaps the current age is one where superior service infrastructure can differentiate economic winners from losers. Service workers do not only account for the speed of delivery in a city, they also transport most of the people, and handle most of the food, and care for most of the sick. It is possible for a region to perform each of these tasks efficiently (such that fewer people are poisoned, more people arrive on time etc), or inefficiently. My point is not that bike couriers should be the next development chimeras, that bike

messengers are the next development strategy to replace "bike lanes" and consumer amenities; basic industries and human capital occupations are still important. My point is that even chimeras can benefit from speed.

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Appendices

Appendix 1
North American Cities Ranked by Global cities Citations

Metropolitan Area	global city Article Citations
New York	15
Chicago	12
Los Angeles	12
Atlanta	10
Toronto	10
San Francisco	9
Miami	7
Montreal	6
Houston	5
Vancouver	3
Boston	2
Dallas	2
Philadelphia	2
Seattle	2
Charlotte	1
Detroit	1
Honolulu	1
Minneapolis	1
Portland	1
Washington DC	1

From Table 1 and Table 2, Beaverstock et al. 1999

Appendix 2
MCAA: "The Do's and Dont's of Maintaining Independent Contractor Status"
(A Pamphlet for MCAA Members)

The Do's and Dont's of Maintaining Independent Contractor Status *

From a presentation given by attorneys Howard Ross and Bert Bisgyer at the 2002 MCAA Annual Meeting

DO

- Give the IC the right to control the manner and means of performing his work.
- Permit the independent contractor to "bid" for a particular route, or a particular time slot for on-demand deliveries.
- Allow the contractor to work the hours he chooses.
- Allow the contractor to pick and choose the jobs he wishes to take.
- Pay the contractor by the job (e.g. for each trip billed). Allow the contractor to hire, and pay for, his or her own assistants.
- Allow the contractor to "hand off" work as he deems appropriate (consistent with other requirements under his independent contractor agreement).
- Supply new contractors with a brief orientation, different from a regular employee's orientation.
- Enter into (and abide by) an appropriate written independent contractor agreement, either with the contractor directly, or with a third party which will be supplying suitable contractors.
- File all required 1099 forms.
- Follow the industry standard in the competing marketplace (if you don't, your competitors will report you!).

DON'T

- Mandate specific hours, prescribe a minimum number of work hours, or otherwise fix the driver's work schedule.
- Pay by the hour, week or month.
- Pay business or travel expenses, including uniforms, vehicle or bike repairs, radios, pagers or cell phones (it is usually alright to deduct these expenses from the contractor's "settlement checks").
- Provide vehicles, bicycles, or business equipment.
- Provide company employees to assist in the performance of the contractor's job.
- Require elaborate training; do not specify specific details as to how deliveries are to be made (see pages 4-5 of the handout from the MCAA presentation).
- Make a promise of employment status; identify the independent contractor as a company employee; make the independent contractor subject to the company's employment policies or company handbook.
- Permit independent contractors to qualify for company fringe benefits.
- Mandate uniforms (unless required by the customer).

- Have the independent contractor report to the company's base office; entitle the independent contractor to use admittance card or keys to the company's principal place of business, or utilize company equipment, supplies, etc.
- Terminate without "cause" (the contractor must be obligated to perform his job according to specifications set forth in the written contract, and termination is available only if the contract terms are breached).
- Include non-competition clauses (confidentiality clauses, and a prohibition against solicitation of customers is usually alright).
- Require elaborate oral or written reports, but rather "service advisories" designed to achieve greater customer satisfaction.

* **Note:** This document is designed to provide accurate and authoritative information with regard to the subject matter covered. It is distributed with the understanding that it does not constitute the rendering of legal or other professional services. If legal advice or other expert assistance is required, the services of a competent professional should be sought.

Appendix 3
**Bi-Variate Correlation: Regional Employment VS Local Messenger
and Local Delivery LQ**

4922 LQ	Total Employment
1	.046
	.823
68	26
.046	1
.823	
26	26

Appendix 4

Another client I worked for – this is my favourite one – we had a lot of medical business and so I would do deliveries from St. Mike’s pharmacy up to hospices, like Casey House. I would do huge amounts of morphine and take them to Casey House. They were like “they sent this with you.” I’d say, yes why? “Do you know what it is?” “Yes, it’s morphine.” “Do you not trust bike messengers with this stuff?” “What if you had an accident and you fell and it broke?” I said, “I would die a very happy man. I personally am not going to steal this stuff. It’s probably got a street value of about \$2 million.” They said “Like 3.” “But there’s a special place in hell for people that steal from AIDS patients.”