

EXAMINING THE IMPACT OF PUBLIC AND PRIVATE SECTOR TRANSPORTATION
LINKAGES AS A CATALYST FOR ECONOMIC DEVELOPMENT IN
PORTLAND, MAINE

by

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A REPORT

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Abstract

The purpose of this report is to identify the role of transportation linkages in facilitating economic development in Portland, Maine, and the surrounding region, beginning with the city's 19th century maritime economy. In the process, this study demonstrates how the evolution of Portland's economy, from early mercantile capitalism, through the industrial and post-industrial eras, was greatly shaped by a succession of transportation developments, engineered by city leaders. Research reveals that these achievements were coordinated through both public sector planning and private sector entrepreneurship, to cultivate comparative advantages for the city. Evidence of this implicit collaboration is apparent in the growth of new economic sectors to support local shipping, rail, freight, and eventually commercial airline service. As a result of these efforts, Portland maintains a status as a regional economic gateway that is disproportionate to its modest population of fewer than 70,000 residents.

In support of this argument, this report will also present relevant historical anecdotes to provide context for the growth of the city and broader region as a whole, from colonization through globalization. As part of the city's economic history, this discussion demands an examination of the macroeconomic forces that contributed to the rise and fall of the local maritime industries, manufacturing, and the 21st century service sector economy. Additionally, this report will discuss the impact of major global events, including war, recession, and the telecommunication revolution, all of which have precipitated major socio-economic changes across the United States.

The report concludes by offering insight into Portland's future, with specific respect to the 2008 economic crisis and the resulting impact on the local real estate and financial markets. Despite an economic climate that threatens the viability of small cities across the United States, Portland's history of resilience provides hope for a prosperous future. In light of the city's modern economic trajectory, the ability to chart a new course will rely upon progressive leadership that can capitalize on the region's natural geographic resources. These future developments will, no doubt, parallel a new wave of investment in local infrastructure and transportation linkages.

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CHAPTER 1 - Introduction to the Economic History of Portland

Overview

When asked to describe their initial impression of Portland, Maine, most Americans elicit one of two responses. Those familiar with the quaint coastal New England city, will probably rave about fresh lobster, picturesque lighthouses, and perhaps even mention horror novelist Stephen King. Others will offer a far less flattering reaction—“Don’t you mean *Portland, Oregon?*” This perception belies the reality that for the last 150 years, Portland, Maine has been the preeminent port in all of New England and one of the most important economic gateways on the entire eastern seaboard. While many still dismiss Portland as a fisherman’s town that has long outlived its economic usefulness, this city of 66,000 inhabitants remains a pivotal international trade hub, even in today’s post-industrial economy. According to a 2005 report by the U.S. Army Corps of Engineers, Portland Harbor ranked as the largest gross tonnage port in New England and the 25th largest port in the entire United States (Ellis, 2006). In 2007, inbound shipments included nearly 150 million barrels of crude oil, making Portland the second largest oil recipient of any harbor on the East Coast (Hughes, 2007, p. 6). Against all odds, this tiny city has maintained a disproportionate share of economic clout, persisting through two World Wars, an economic depression, and a sectoral transformation of the global economy that crippled similarly situated ports across the country.

Basic Perspective

This report will take a historical perspective to illustrate that Portland’s economic prosperity came as a windfall of key transportation linkages, to create a lucrative comparative

advantage for the city. Thus, by virtue of its connectivity to Boston, Montreal, Quebec City, and to a lesser extent, Saint John and Halifax, Portland has remained an economic hub, while other 19th century ports have literally fallen off the map. In exploring this research topic, this exercise will strive to answer two distinct questions. First, how was the city of Portland's turbulent, yet sustained rise to prominence shaped by its transportation infrastructure? Second, how does this history of Portland present a relevant narrative supporting the importance of place within the increasingly decentralized 21st century economy? The first question will be answered directly, by explaining how major transportation linkages served as the stimulus for Portland's economic metamorphosis. In addition to Portland's comparative geographic advantage—the dominant theme of the city's cultural and economic history—major transportation breakthroughs will include the Grand Trunk Railroad (1844), the Portland-Montreal Oil Pipeline (1941), and the re-creation of the Portland International Jetport (1968-present). These developments parallel the evolution of Portland from a small shipbuilding seaport, through periods of industrial prosperity, post-industrial decay, and culminating in the city's reemergence as a thriving service-based economy.

The second question, concerning the relevance of this inquiry, will be implicitly addressed through this historical context of this report. As referred to in the preceding paragraph, the underpinning for Portland's cultural and economic prosperity has always been its natural geography, both in terms of relative proximity and comparative resources. Without a safe and accessible deep water inlet, Portland may never have been settled in the first place. Moreover, without a densely forested hinterland connected by more than 2,500 lakes and 5,000 streams, Portland harbor would have been little more than New England's eastern-most intermediary point. Although these historical comparative advantages are rarely given a second

thought, it is important to remember that they serve as the foundation upon which Portland's post-industrial economy has been built.

In contemporary American society, globalization has created a culture of geographic indifference. Manufacturing can be outsourced to China, call centers can operate from India, and remarkably, even the data processing for our "drive-thru" windows can be re-located to a remote off-site location. Disturbed by this trend, it is not uncommon to hear Americans bemoan "we just don't produce anything, anymore." Within a global economy characterized by overnight shipping, just-in-time production, and e-commerce, one might be left to ponder whether American cities are little more than a spatially-insignificant collection of buildings, populated by spatially-mobile people. After all, if stocks can be traded from wireless hand-held devices, Wall Street is little more than an antiquated meeting place for keeping score.

The case study of Portland, Maine, refutes these latter assumptions and puts forward a convincing case against the devolution of the central place theory. Simply put, despite our illusions to the contrary, place still matters. Even in the 21st century, the economic and transportation linkages that support Portland's economy are inseparably tied to its physical place; the geographic reality of a sheltered deep sea harbor along the coast of Maine. At each and every turn along Portland's winding path to prosperity, the city has leveraged this comparative geographic advantage to build a sustainable economic base. To this end, the development of Portland's transportation infrastructure has been the central mechanism used to cultivate these natural advantages. As the city attempts to remain economically-viable in the 21st century, its success will largely hinge upon the ability to further exploit the natural and man-made resources the city has developed over the last two centuries. Further, in spite of the prevailing wisdom that globalization has bulldozed a level playing field— a theory articulated in Thomas Friedman's

influential book *The World is Flat*— it proves that there remains a niche for well-resourced communities to thrive. In an economy that operates without regard for geography, Portland continues to succeed precisely because of its location, rather than in spite of it. As global markets flatten and once prosperous American cities wither away, Portland serves as a relevant reminder that American cities can regain the metaphorical high ground. Thus proving, place is still significant.

Economic History

Apropos of its name, the economic history of Portland begins and ends with its natural seaport. As Conforti (2005) suggests, “studies of place often begin with physical geography. Nature sets boundaries to and creates possibilities for human activity” (p. xiii). To this extent, Portland’s 19th century economy was predominantly a function of the possibilities created by its narrow peninsula, flanked by two sheltered ocean coves. Less than four miles from the open waters of the Atlantic, Portland is blessed with a deep channel leading into the Fore River, providing inland connectivity for the harbor (Conforti, 2005, xii). Sheltered from the easterly gales that propel vicious waves up and down Maine’s rocky coast, Portland has historically served as place of refuge for fisherman and shipping vessel during stormy weather. Since first discovered in the 17th century, Portland harbor has been widely known to be “one of the best, if not the most commodious, safe, and accessible of any on the Atlantic Coast” (Poor, 1855, p. 3). Above all else, this has been Portland’s single greatest natural advantage in achieving economic prosperity.

Perfectly situated to become a shipping gateway, Maine’s heavily-forested interior provided additional fuel for new industry, allowing early settlers to extract prime timber just a few miles from the ocean. This gave rise to a burgeoning ship building sector, as White Pines—

among the tallest trees in eastern North America—were harvested and shaped into towering masts. These forests were not only a resource for the construction of ships, but literally served as the building block for Portland’s maritime economy. Fishing piers, wharves, warehouses, shipping crates, and barrels were all built using local timber products (Conforti, 2005, p. xiii). The emergence of the timber industry during the middle of the 19th century served as the bridge to Portland’s industrial economy. In addition to supporting the fishing industry with vessels, ship building established a new manufacturing base that would support the city’s economy for decades to come.

The evolution from a fishing community, to a ship building center, and later to an industrial port was by no means a natural progression, nor was it a movement towards any particular economic specialization. If anything, Portland’s economy became more diverse, as the thriving maritime economy triggered an economic multiplier effect that helped grow manufacturing. Perhaps the most significant step towards broadening Portland’s economic base was competing to be, and ultimately prevailing as, Montreal’s winter port. Each year the St. Lawrence Seaway, connecting Quebec to the Atlantic Ocean, would freeze over and become impassible for ships. As a result, Montreal needed to establish a connection with an Atlantic port to support its growing industrial sector. The completion of the Grand Trunk Rail line, which connected the two cities, was a defining event, both in establishing Portland as Montreal’s winter port, and in symbolizing Portland’s arrival as an industrial hub. With rail entrenched as the dominant mode of transportation, the Grand Trunk Railroad was an immensely valuable economic resource, connecting Portland to previously untapped interior trade markets.

Similar to the way timber supported a ship-oriented pre-industrial economy, a steel manufacturing industry emerged to supply raw materials for Portland’s growing rail network

during the late 19th century. As the centerpiece of Portland's manufacturing sector, steel attracted new capital investments from across the region, as it allowed firms to vertically integrate their factors of production in a centralized location. The steel industry was crucially important to Portland's economic vitality during both World Wars, as the city experienced a reawakening of its shipbuilding industry, constructing steel hull ships for the U.S. Navy. Wartime manufacturing also led to the construction of the Portland-Montreal Oil Pipeline. Completed in 1944, it was christened the nation's "first national defense pipeline" and allowed crude oil to be delivered to Canada from Texas in a mere eight days. In the more than six decades since it was completed, it has carried nearly one billion gallons of oil (Robinson, 2007, p. 94).

Although the steel industry was a fixture of industrial Portland from the late 19th century through World War II, there were prolonged interruptions in its economic viability. Most notably, Portland's economy entered a prolonged rut that began immediately after World War I and lasted through the Great Depression. The decline of industrial Portland can be attributed to a number of factors, including the city's loss of its status as Montreal's winter port, the depletion off-shore fisheries, and the overall decline in the importance of rail shipping across the country. Nevertheless, the onset of a new industry would breathe life into Portland's limp manufacturing sector and fundamentally restructure Maine's economy during the early 20th century. Falling back on the region's most abundant natural resource, paper mills became a fixture across the state of Maine and throughout the rest of northern New England around the turn of the century. In 1900, the Great Northern Paper Company opened what, at the time, was the world's largest paper mill in Millinocket, Maine (MPPA, 2007). Over the next decade, Maine's paper industry

would grow to 109 mills, transforming small riverside communities across the state into paper manufacturing centers (Folklife, 2006).

Prior to this time, Maine's economy was highly centralized around the city of Portland as its regional shipping entrepot. The paper industry represented a fundamental shift in the state's economic hierarchy, as manufacturing moved to the hinterland to be closer to natural resources. Consequently, Portland's economic importance was no longer tied directly to physical production. Rather, the city began to attract the tertiary and quaternary economic activities that began to characterize 20th century service-based economies. For example, Portland served as the original corporate headquarters of International Paper, beginning in 1898 (MPPA, 2007).

Unfortunately, Portland's economic reawakening during World War II was short-lived, with the city experiencing yet another economic downturn, which would last through the 1980s. These events were precipitated by a nation-wide loss in manufacturing jobs, including the abrupt exodus of the paper mills during the 1960s and 1970s. The city attempted to reverse course through slum clearance and urban renewal, but these efforts failed to inject life into the slumping local economy. Citing a widespread "need for renewing," the city planning board oversaw the demolition of historic Union Station, the razing of the downtown post office, and the bulldozing of ethnic neighborhoods (Bauman, 2006 and Robinson, 2007). This "scorched earth" redevelopment initiative drove commercial activity away from the downtown area. At the same time, suburbanization created competing commercial center in nearby South Portland, further challenging the downtown's economic viability.

At a time when manufacturing cities across the Northeast were succumbing to the Rust Belt effect, Portland was saved by generous federal earmarks and, again, its transportation linkages. The once dormant Portland Municipal Airport was transformed into the Portland

International Jetport, with the help of federal earmarks secured by Maine politicians during the 1970s (Robinson, 2007, p. 103). This equipped Portland with the type of modern airport required to lead the geographically-isolated city in its transition to a post-industrial, service-based economy. Concurrently, a resurgence of the Old Port, aided by federal tax credits and a new generation of educated, civically-minded “lifestyle refugees” solidified Portland’s renewed economic life. As Conforti (2005) explains, “prosperity and geography endowed Portland with assets that acquired new value in a postindustrial economic: a scenic coastal location, maritime, heritage, and distinctive built environment” (p. 322). Once again, in combating the regional de-industrialization of the late-20th century, Portland’s rebirth was spawned from the very same comparative advantages that helped it achieved pre-industrial prosperity.

This introduction to the economic history of Portland is intended to provide context for the narrative that will follow. A more in-depth analysis of Portland’s economic trajectory, as shaped by its transportation linkages, will be organized into six chronological chapters, with each epoch building upon the one that preceded it. In doing so, this report will demonstrate that the progression through which Portland has achieved its disproportionately large share of economic significance cannot be attributed to chance or even the proverbial “invisible hand” of Laissez-faire markets. Instead, the only sensible explanation could be that this path was engineered through a combination of public and private sector transportation investments, creating a long-term multiplier effect.

The ability to build an economy around geographic capital and transportation linkages, as Portland succeeded in doing, remains a guiding principle of public sector economic development in the modern economy. Today’s post-industrial economy still demands that cities develop and exploit a comparative advantage to remain both regionally and globally competitive. While the

specific policy methods have changed, the importance of public sector investments in developing an economically competitive urban center has remained a constant. While the Central Place Theory once proposed that firms must battle for locations within the primate city, the tides have since reversed. Today, cities, counties, and states must market themselves to the private sector or face economic extinction. In many ways, Portland preempted this economic reality through the successful coordination of its public and private sector transportation investments with the emerging industries of the 19th and 20th centuries.

Drawing upon historical and archival resources, this report will detail the events that allowed Portland to leverage its comparative geographic advantages and build a powerful, resilient economy structured around evolving transportation linkages of the last 150 years. This process will reveal that, amidst wars, fires, and extreme boom-bust cycles, a central cast of influential characters was principally responsible for shaping the vibrant place that exists today. As Robinson (2007) notes, “a willingness to fight for change and a wry optimism are the only constants that run throughout the long history of Maine’s most controversial city” (p. 4). Hence, the history of Portland does not revolve around a single milestone discovery, transcendent political figure, or lone enterprise. Rather, Portland’s unique trajectory was formed through a series of successive achievements, coordinated with a unique physical geography and advanced transportation infrastructure. The culmination of these events has created a city that looms much larger, both in influence and perception, than its modest population would suggest. This report will strive to shed light on exactly how this most unique maritime city came to be.

CHAPTER 2 - Review of Literature

In the foreword to the second edition of Portland, an illustrated history of the city, Earle Shettleworth notes that Portland “boasts a wealth of literature about itself that is not enjoyed by most communities twice its size” (Dibner, 1986, p. xi). In addition to its literary implications, this statement reflects a broader meaning with regards to Portland’s socio-economic, cultural, and historical significance. Despite a relatively modest population, Portland has long held a status of importance that remains the envy of competing cities throughout New England, Quebec, and maritime Canada. In short, behind the city’s rise to prominence, lies a story that has captured the imagination of generations of writers, providing a seemingly endless stream of places, plotlines, and characters—both real and imagined.

Among the many books, journal articles, and websites that have contributed to the study of this topic, there are four that deserve distinct recognition for their respective contributions to the body of knowledge on the economic history of the city of Portland. Creating Portland: History and Place in Northern New England, edited by Joseph A. Conforti, offers the most recent and broadest insight into the cultural history of the city. In the book’s introduction, Conforti identifies many of the same charms and curiosities of Portland’s intricate history that originally compelled me to write about this subject. Namely, the interaction of a vibrant modern culture and a dynamic economy, contained within a uniquely historic maritime setting. The very essence of Portland—a thriving coastal community that stands amidst striking 19th century architecture, emitting a palpable sense of history—is that of the quintessential New England city. For both natives of the region and visitors, Portland is a living symbol of what New England

prides itself as being—prosperous and cultured, with deep ties to the local history. However, as Conforti explains, the depth of Portland’s economic and cultural significance has yet to be captured in an appropriate historical context:

Despite the city’s historic importance and abiding prominence in New England as well as its continuing appeal to newcomers and tourists, we have no up-to-date study of how Portland became Portland. That is, we have no broad understanding of Portland’s layered past and how history, geography, and public policy have created one of New England’s most habitable places (Conforti, 2005, p. xii).

In response to his own assertion, Conforti indicates that the volumes incorporated in Creating Portland aim to address the “physical, social and cultural landscapes” that underlie how Portland came to be the city it is today (Conforti, 2005, p. xii). The objective of this report, insofar as it parallels the issue raised by Conforti, is to convey “how Portland became Portland,” specifically from an economic perspective. In the process, this economic history will naturally overlap with many of the prevailing social and cultural themes of 19th and 20th century New England. Nevertheless, the prism through which this report will address the matter of Portland’s rise to prominence will provide a unique perspective, based on the interaction of government and the private sector in creating transportation linkages that led to lucrative economic opportunities. To this end, Conforti verifies that “Portland’s rise as a maritime entrepot in the nineteenth century... was not simply a consequence of geography and natural resources. The city’s prosperity hinged on a willingness of commercial developers and civic leaders to alter the peninsula’s topography” (Conforti, 2005, p.xiv). This indication that Portland’s economic landscape was re-shaped—both physically and metaphorically—through a collective effort on behalf of its people, businesses, and government, is an underlying theme that will be reinforced throughout this report.

In addition to Conforti's introduction, which frames the book as an introspective cultural narrative, Creating Portland contains three additional essays that contributed to the development of this research topic. The first, "Eighteenth-Century Portland as a Commercial Center" by Charles P.M. Outwin, provides invaluable context for Portland's pre-industrial economy, the point from which this report will begin to analyze the relationship between the city's economic progress and transportation infrastructure.

The next chapter among the trio of essays that have been essential to this report is titled "Creating and Preserving Portland's Urban Landscape, 1885-1925," written by Earle G. Shettleworth, Jr. This examination of Portland's urban character is vitally important on two separate levels. First and foremost, the city's post-World War II decline and subsequent economic re-birth are intrinsically tied to the policies enacted during this forty-year period. And second, Portland's built environment, as reflected in its historic architecture, network of urban parks, and thriving downtown waterfront, is a central part of its image as a distinctive and progressive city. These revelations align with many of the themes presented by John C. Robinson in his book A Concise History of Portland, Maine, which will also be discussed in greater depth. A noteworthy detail among the common historical threads presented in both works is the way in which the city shaped its own physical identity through urban planning. During the City Beautiful movement, Portland was among the first wave of cities to contract prominent landscape architect Frederick Law Olmstead to design a network of parks (Robinson, 2007, p. 79). Later, during the economic slump that gripped much of New England during the 1970's, the city revived its urban core through waterfront redevelopment— a prominent contemporary urban renewal strategy. These facts are further evidence that Portland's rise to prominence was not a result of happenstance; it was earned.

The third and final essay among the volumes contained within Creating Portland that will be emphasized in this report is titled “From Declining Seaport to Liberty City: Portland During Depression and War,” by Joel Eastman. This chapter specifically discusses the impact of the Great Depression, along with the economic resurgence brought on by the Second World War. When examining the boom-bust cycles of Portland’s 20th century economy, the short-lived period of war-time prosperity stands out as having been somewhat of a doubtful advantage for the city. Portland’s economy had been lagging for many years prior to the Depression, so the return of ship building, manufacturing, and defense-related industries was a welcome re-investment. At the same time, however, most of these jobs were rendered obsolete shortly after the war ended. Thus, Portland’s growth had been achieved by temporarily recapturing some of its older primary and secondary sector industries. This, of course, was of little help in the post-War era, when the country began its transformation into a service-based, tertiary and quaternary sector economy. Suffering through more than two decades of post-War economic decline, Portland’s re-birth during the 1970’s is one of the most compelling triumphs of Portland’s economic success, which will be elaborated upon later in this report.

Also among the notable resources that made this research project possible, is a book titled New England and the Maritime Provinces: Connections and Comparisons, edited by Stephen J. Hornsby and John G. Reid. Similar to Creating Portland, Hornsby and Reid’s compilation consists of a collection of historical essays that provide insight into the various cultural, economic, and geographic forces that have shaped the history of the region. As the title indicates, New England and the Maritime Provinces does not focus on Portland as an individual entity or on the New England states as disparate governing bodies. Rather, it portrays the New England states and the adjacent provinces of maritime Canada as a broader, interconnected space

brought together by trade and geographic proximity. Ultimately, over the last two centuries, diverging policy decisions resulted in the states and provinces becoming increasingly dissimilar from an economic perspective. Whether or not the adjoining socio-political and cultural movements within New England and maritime Canada have followed similarly divergent paths is an entirely different debate, one which will not be explored in this report.

As it applies specifically to the economic history of Portland, New England and the Maritime Provinces sheds light on the interaction between the city—along with its hinterland across the state of Maine—and the nearby provinces. The connections forged between the two regions were vitally important throughout the 19th and early-20th century, both for transportation and trade. The impact of policy decisions in shaping this relationship is explored in greater detail in the chapter titled “Re-examining the Economic Underdevelopment of the Maritime Provinces: A Case Study of Portland, Maine and Saint John, New Brunswick,” by Robert H. Babcock. In comparing the evolution of the two local economies, specifically between 1880 and 1920, Babcock elaborates upon their respective metropolitan-hinterland dynamics, as well as the impact of the industrial revolution in each city. Beginning as “two fundamentally similar urban economies,” the case study explains how, through good fortune and sound economic policy, Portland enjoyed substantially more growth and prosperity than Saint John (Hornsby and Reid, 2005, p. 198-199).

The remaining essays collected in New England and the Maritime Provinces are not directly applicable to Portland as a distinct gateway and metropolitan economy, but provide supporting information with regards to other relevant economic movements over the last one hundred-fifty years. These chapters include a comparison of the comparative economic advantages in New England and Nova Scotia between 1720 and 1860, a detailed explanation of

the policy response to the first multi-species fishery crisis in the Gulf of Maine, as well as a chapter on Maine-Maritime lumbering folklore. Although these subjects may appear to be obscure, in and of themselves, they each contribute to understanding Portland's pre and post-industrial history, which is inherently tied to the surrounding states and provinces.

The third and perhaps most indispensable resource that informed this research topic is the previously mentioned book A Concise History of Portland, Maine by John B. Robinson. In contrast to both Creating Portland and New England and the Maritime Provinces, Robinson narrates this annotated history in a flowing vernacular, rather than as a scholarly essay. Credited as the creator of the screenplay *Hotel Rwanda*, Robinson's storytelling abilities are truly unique. In A Concise History of Portland, Maine he showcases this talent, weaving together what is, in his own words, an "incendiary record" of more than 800 years of Portland's history. The result is a coherent historical narrative about the people, places, and events that have shaped the city, delivered in a manner that is clear, informative, and at times even humorous.

Among the central points of emphasis in Robinson's writing is the city's motto—*Resurgam*—Latin for "I shall rise again" (Robinson, 2007, p. 103). This motto is befitting of the city's tumultuous history, which among numerous economic peaks and valleys, has also been burned to the ground four times, while barely escaping a Confederate torch on another occasion (Robinson, 2007, p. 56). Robinson's work corroborates the notion that the city of Portland's perseverance, both as an economic gateway and the cultural epicenter of Northern New England, came as a result of a concerted effort by forward-thinking city leaders to re-shape the city. Accordingly, Robinson notes that throughout all of the city's turmoil, "each re-imagination of the city has been built atop the rubble of the previous one" (Robinson, 2007, p. 4). Thus, in A Concise History of Portland, Maine Robinson succeeds in conveying the notion that the city's

late century re-birth was more than a twist of fate, but the result of generations of progressive leadership and investment by the local citizenry.

The fourth and final seminal work in this subject area is an article published in 1993 for the geographic periodical *Antipode*, titled “Ideology and Urban Landscapes: Conceptions of the Market in Portland, Maine,” by Lawrence Knopp and Richard S. Kujawa. Knopp and Kujawa provide a thorough analysis of the market conditions that ignited Portland’s real estate boom during the 1970’s and 1980’s. In doing so, they identify two of the most important economic developments that led to Portland’s latest economic reawakening. The first such development was the city’s “commodification” as a destination and place (Knopp and Kujawa, 1993, p. 122). In other words, by rehabilitating the downtown area and Old Port, Portland was able to transform its image from a fading northeast city to a hip and trendy place to live. The success of upscale commercial revitalization efforts in the downtown helped to reinforce Portland’s newfound status as a place where residents enjoyed an exceptional quality of life. In the ensuing years, Portland began appearing in various lifestyle magazines, championing the city as one of the most “livable” small cities in the United States. A consequence of re-branding the image of the city was the attraction of a new wave of “lifestyle refugees,” primarily consisting of young, well-educated, professionals (Conforti, 2005, p. 317). This exodus of skilled labor subsequently led to increased levels of investment in local real estate (both commercial and residential), resulting in an influx of capital and an extended period of economic growth.

The second and even more important parallel economic development was Portland’s ability to build and sustain a new regional economy, separate from the Boston-Worcester-Providence-Hartford megalopolis, which had dictated the market conditions in northern New England for decades. Citing Harrison (1984), Knopp and Kujawa (1993) confirm that the

regional economy, especially in Maine, had “traditionally served as the repository for surplus capital from southern New England” (p. 124). For many years, this external stimulus came in the form of production-based investment. As a result, after manufacturing jobs left the area during the 1950s, the northern New England economy was crippled. However, Portland’s economic development programs were successful in establishing a new economic base, predominantly focused on service sector jobs and tourism (Knopp and Kujawa, 1993, p. 124). This new economic approach has relied heavily upon Portland’s transportation linkages, including Portland International Jetport and ferry service from the Old Port to handle new volumes of tourists and business travelers.

Each of the aforementioned sources fundamentally shaped the direction of this report by providing valuable insight into the relationship between Portland’s economic prosperity and its transportation infrastructure. As evidenced by the prevailing literature on this topic, this connection has been established both through public policy initiatives, as well as through private enterprise. Over the last one hundred-fifty years, Portland’s economic hopes have been buoyed by progressive policies that have captured new economic sectors by capitalizing on local resources—including both physical and human capital—through regional transportation linkages.

CHAPTER 3 - Pre-history and the Grand Trunk Railroad

The Falmouth Advantage

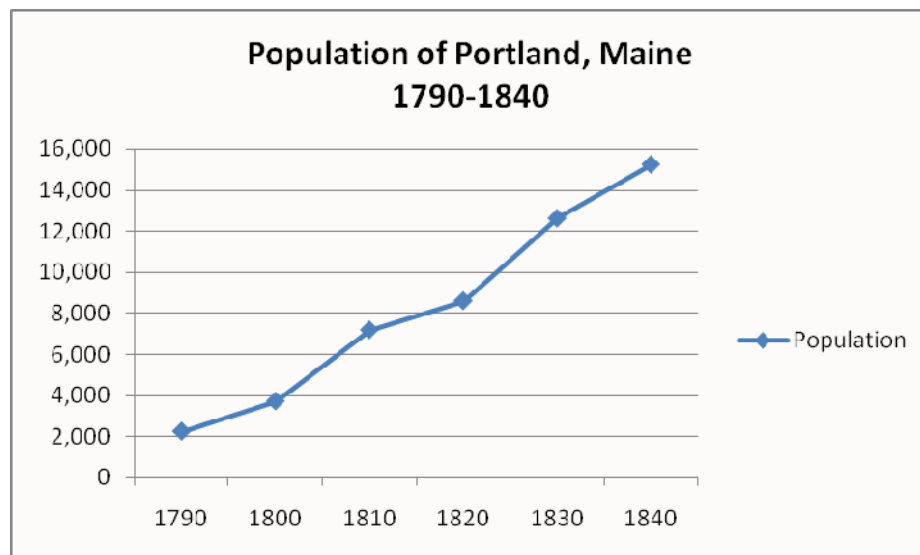
The first permanent European settlers came to the area today known as Casco Bay in 1628, but after a series of violent confrontations with the Native American population, the settlement failed to prosper (Dibner, 1986, p. 6-8). Later christened Falmouth by the commissioners of the Massachusetts Bay Colony, Casco Bay emerged as a bustling trade port during the 1750s. This early prosperity was interrupted, however, after the town was bombarded by the British during the Revolutionary War, leaving three-quarters of Falmouth in ruins (Robinson, 2007, p. 31). The town was again rebuilt, during which time the outer peninsula separated from the rest of Falmouth and incorporated under the name Portland, on July 4th, 1786 (Dibner, 1986, p. 16). Over the next decade, Portland experienced rapid growth, fueled by a thriving timber industry. After several ships were wrecked on the rocky shores of Portland Sound, President George Washington was persuaded to support an allotment of \$1,500 dollars to build Portland Head Light, the first federally-funded lighthouse in American history, completed in 1791 (Robinson, 2007, p. 38). Symbolically, this marked the dawn of Portland's newfound importance within the regional economy of colonial New England.

In 1820, Maine was granted independence from Massachusetts and accepted into the Union as a free state, as part of the Missouri Compromise (Robinson, 2007, p. 42). Portland briefly served as the state capital, but the site was moved to Augusta in 1832. This, however, did nothing to diminish Portland's status as northern New England's most important economic gateway. Portland's meteoric rise as a shipping enterpot during the early-19th century was

primarily the result of three crucial natural advantages. The first such advantage was an opportunity created by physical geography, as the point at which the Fore River entered Casco Bay provided for a perfectly sheltered harbor. In a report to the Commissioners of Portland Harbor, local businessman John A. Poor (1855) wrote:

Portland harbor is so easy of access at all conditions of the tide and with any direction of the wind; and withal, is so capacious, deep and well sheltered, that the largest ships may enter and securely ride, at all times and under all conditions of weather (p. 4).

Naturally blessed with a channel capable of handling very large ships, the city was perfectly situated to receive inbound cargo from foreign traders. Nonetheless, this singular advantage could not have been exploited to the extent that it was, if not for the massive forests and bountiful offshore fishing grounds nearby. This combination of a sheltered inner harbor and the abundance of two additional natural resources, all closely tied to the dominant mode of commercial transportation, was no less than a perfect storm of good fortune for Portland's early 19th century economy.



(Source: U.S. Census Bureau)

Figure 3-1: Portland's Population Growth between 1790 and 1840.

Resource Extraction & the Maritime Industries

The value of the region's timber resources was apparent to the earliest settlers, prompting them to abandon farming in favor of trade. As Dibner (1986) notes, "lumbering was so profitable that people neglected agriculture. They were dependent on commerce to supply their basic necessities" (p. 11-12). The extraction of timber served as both a valuable export commodity, as well as a natural incentive to build ships locally. The demand for quality timber was especially high in Britain and, as the easternmost port of the United States, Portland served as the natural point of departure for these cargoes.

The reach of Maine's exports increased substantially during the 1830s, after Britain finally permitted American vessels to legally trade in the West Indies. At the height of the Caribbean lumber trade, more than 1,200 cargoes left from Maine to Cuba alone over a five year span (Duncan, 1992, p. 283). The profits generated by these long voyages were extremely large—Maine lumber was sometimes sold for more than seven times its domestic retail price in Havana (Dibner, 1986, p. 30). In exchange, Portland received Caribbean staple products, such as molasses, coffee, and rum. (Dibner, 1986 and Duncan, 1992).

Aided by a growing ship building industry, the value of exports leaving Portland Harbor increased nearly fivefold between 1846 and 1854 (Poor, 1855, p. 30). During this time, Maine was capable of producing more than twice the gross tonnage of ships as Massachusetts, despite employing one-third fewer ship building carpenters. The great efficiency of this sector was attributable both to the quality and close proximity of Maine's timber resources. As Poor (1855) commented in his report, "this fact will probably, in some measure, account for the rapid advance of our shipping interest, within the last few years" (p. 26). In other words, the ability to

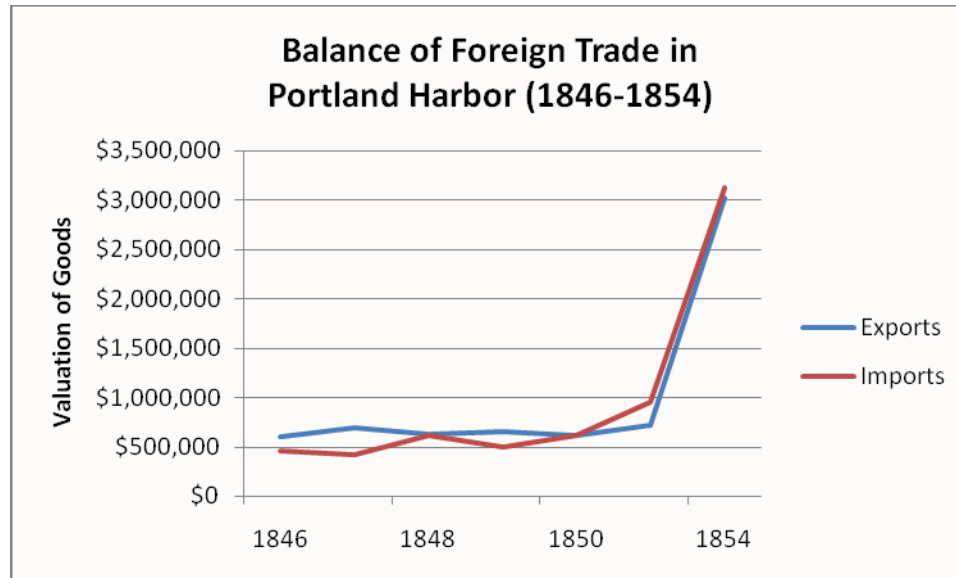
build and accommodate large ships was the perfect complement to the abundant White Pine trees that populated Maine's forests. In fact, at one point during the 19th century, it was estimated that one-fifth of the United States merchant marine fleet was owned by Maine businessmen (Dibner, 1986, p. 28).

Portland's emergence as a shipping entrepot had created similarly lucrative opportunities for local fisherman. For centuries, the Greater Gulf of Maine Region (GGMR) had been acknowledged as one of, if not the single most productive fishing area in the entire world:

In the Gulf of Maine, the annual infusion of roughly a trillion litres of freshwater run-off, tidal mixing of deepwater nutrients and coastal waters, and intermingling of northern and southern marine fishes fostered remarkable biological productivity and species diversity... What was scarce in Europe was a merchantable "resource" in the New World (Hornsby and Reid, 2005, p. 208).

Attracted by these immensely productive fisheries, European ships flocked to the GGMR as early as the 16th century (Hornsby and Reid, 2005). With virtually no regulation or international cooperation during the late-18th and early 19th centuries, the GGMR was essentially a free-for-all, in which American, Canadian, and European fisherman competed for the greatest possible catch. As early as 1792, in a report to Congress, Thomas Jefferson identified the inherent advantages and disadvantages experienced by American fisherman in the foreign fish trade (Duncan, 1992, p. 410). Among the stated advantages were the fact that American fisherman were able fish near home, which enabled them to use smaller vessels—which were, in turn, less expensive—and also allowed their wives and children to help cure fish. On the other hand, the disadvantages were primarily a result of the fact that Americans had to pay high tariffs on goods that were not mass-produced in the early colonies, including salt, hooks, lines, leads, sailcloth, and rope (Duncan, 1992).

In the early-19th century, the trade of fish (specifically, Cod) was a valuable bargaining chip for New England fisherman in European trade (Hornsby and Reid, 2005, p. 208). However, a series of events that occurred during the 1820s and 1830s permanently altered market conditions, substantially increasing Portland's importance within the North American maritime economy. The completion of the Erie Canal in 1825, first and foremost, opened the Great Lakes region and the ever-expanding western frontier to GGMR fish harvests (Duncan, 1992, p. 413). This landmark transportation development coincided with a large increase in the country's population, causing the aggregate demand for fish to increase proportionally. As a result, by 1840 domestic markets consumed more than three-quarters of the United State's GGMR catch, previously an export commodity (Duncan, 1992, p. 413). This movement in the demand for fish was indicative of broader market trends, which directly affected commerce in Portland Harbor. Traditionally, the city of Portland had run a trade surplus in relation to foreign markets. That is, the value of the city's exports exceeded the value of its imports, indicating that Portland was a gateway to European and Canadian markets, more so than the rest of the United States. By 1850, foreign commerce had increased dramatically, but for the first time, the city was consistently running a trade deficit. A snapshot of this changing trend is shown in the figure on the following page.



(Source: Poor, 1855)

Figure 3-2: Portland's Foreign Trade Balance between 1846 and 1854

With both prospering fishing and timber industries, Portland was the beneficiary of an economic multiplier effect, as the city began to manufacture light goods associated with its dominant shipping industries. The manufacturing of barrels, for instance, was a natural extension of shipping local timber, which also enabled residents of the rural hinterland to export the state's limited agricultural yield, including apples and potatoes. To this end, Poor (1855) noted that "the increase of the commerce of the city has probably been exceeded by the growth of the manufactures in our midst" (p. 33). This quote reflects the beginning of a fundamental shift in economic philosophy, observed across New England throughout the mid-19th century. During this time, cities and towns made the transition from primary sector economic activities (resource extraction and agriculture) to secondary sector industries (manufacturing). In Portland, the ability to market locally-manufactured products substantially reduced transit costs, as very little needed to be shipped from Europe or the southern United States for re-export (Duncan,

1992, p. 283). This provided Portland's businesses with a competitive advantage, allowing merchants to sell their goods at a lower price.

The Impact of Rail & the Grand Trunk Line

The changing economic climate throughout the United States during the mid-19th century was precipitated by the Second Industrial Revolution and the development of steam-powered ships and locomotives. This concurrent shift in economic factors of production and transition to new modes of transportation threatened to undermine the city of Portland's longstanding natural geographic advantages. By the end of President James Polk's administration in 1849, United States territory stretched all the way to the Pacific Ocean. Given this massive expansion of land, it became increasingly important for cities to tie into the ever-growing network of rail transit. Unlike the previous one hundred years, when there was little debate as to whether Portland was suited to be a shipping gateway, the city faced a less than certain future with regards to the continental rail network. With rail quickly becoming the dominant mode of commercial transportation, the Second Industrial Revolution represented a major turning point in the economic history of Portland. Unlike shipping, the newest transportation linkages would have to be engineered, rather than inherited from the physical characteristics of the land.

Despite maintaining thriving fishing and shipbuilding industries alongside light manufacturing, Portland had yet to establish itself as a regional hub for heavy industry as late as the 1850s. In recognition of this failure, Poor (1855) remarked that "for reasons which are very readily understood, the City of Portland has not heretofore attained that commercial success, to which her position seemed to entitle her" (p. 4). The cause of this relative economic underperformance was quite clear: as North America grew westward, the strategic importance of the city's port was diminished. In order to remain economically-viable, cities across New

England were dependent on connections to rail, which was a faster mode of transit and could penetrate interior markets not accessible by waterways. Rather than accepting a reduced role in the regional economy, however, Portland's innovative leaders saw an opportunity to integrate existing maritime transportation routes with the new rail system, thereby enhancing the city's economic leverage.

The Grand Trunk Railway Company, incorporated in 1853, was contracted to construct a railroad connecting all of the key cities in the Canadian provinces of Quebec and Ontario (Bladen, 1948). Its western terminus was planned for Chicago, then among the fastest growing cities in North America. Still, it was imperative for the Grand Trunk Railroad to establish a second terminus on the Atlantic Coast, in order to efficiently capitalize on western markets. As Dibner (1986), explains "most western commerce was shipped via the Great Lakes to Montreal and then down the St. Lawrence. In winter, however, when the St. Lawrence froze, goods had to be shipped by rail to a southern port for reloading on transatlantic cargo ships" (p. 67). Thus, the Atlantic terminus of the Grand Trunk line would have a direct connection, not only to Canada, but to the fastest growing markets in the western United States, via Chicago.

Portland was not, by any stretch of the imagination, the natural recipient of the Atlantic terminus of the Grand Trunk Railroad. To the south was the much larger city of Boston; to the north, the Canadian cities of Saint John and Halifax. Nonetheless, local politicians and railroad entrepreneurs saw a lucrative opportunity in becoming Montreal's winter port. Specifically, the aforementioned John A. Poor was the person who is most responsible for this plan. A visionary promoter of steam locomotives, Poor understood that what was best for the interests of railroad capitalists was also best for the city as a whole. Unwavering in his belief that Portland could compete with Boston to win the rail contract, Poor famously raced a sled from Portland to

Montreal during a blizzard to close the deal (Robinson, 2007, p. 43). The spirit of Poor's leadership and perseverance in attracting the Grand Trunk line, which reinvigorated the city's economy, is best captured in his 1871 obituary, which read, in part:

Long before the mass of his fellow-citizens were awake to the fact, he announced 'Portland is the natural seaport of the Canadas'—a declaration repeated by him so often as to cause amusement among those who did not comprehend the true interest of their State. Mr. Poor, however, never faltered before ridicule nor succumbed to indifference. In season and out of season—before meetings of merchants in remote towns, often in the most inclement weather of a Maine Winter, through the Press and by individual persuasion—he urged his ideas, until he had the satisfaction of seeing them embodied in the Atlantic and Saint Lawrence Road, the nucleus of what is now better known as the Grand Trunk Railway (The New York Times, 1871).

While Poor's accomplishments may appear to have been a timely response to the changing economic climate of his day, his plans for Portland's rail system began many years before the railway was ever constructed. Thus, Poor's vision and foresight during the early-1840s laid the groundwork for Portland's continued economic prosperity through the turn of the 20th century. The basis of this plan was Poor's understanding that although the continent could continue to push westward—opening countless transportation opportunities in the process—there was only one way to reach Europe. The notion of a European-North American Railroad connection, linked, of course, through Portland's seaport, was credited to Poor, who conceived of the idea almost twenty years before the completion of the Grand Trunk line (The New York Times, 1871).

War & Fire

Having emerged as Montreal's winter port, the city of Portland had re-established its place as the preeminent economic gateway of northern New England and appeared poised for an era of uninterrupted prosperity. Unfortunately, two catastrophic events—one at the national

level and one unique to the city—would temporarily derail Portland’s course. The first such event was the outbreak of the United States Civil War, which lasted between 1861 and 1865, and claimed the lives of more than 600,000 American soldiers. Maine natives played a crucial role in the Union victory, most notably Colonel Joshua Chamberlain, known for his fearless bayonet charge at the battle of Gettysburg (Robinson, 2007). This courageous last stand was depicted by actor Jeff Daniels in the 1993 film *Gettysburg*. A second war hero from the state of Maine was Neal Dow, who was captured by the Confederacy at Port Hudson and later went on to become the Mayor of Portland (Robinson, 2007, p. 52).

War stories aside, the impact of the Civil War on the economy of Portland, as well as the United States as a whole, is very easy to discern. Foreign commerce came to a virtual halt, due to the rising concern of attacks by Confederate warships. Accordingly, Duncan (1992) explains that “...with trade thus diminished by fear, many Northern ship owners sold their ships to foreign countries, principally to England, and found after the war that according to United States law, they could not ever be registered again in the United States” (p. 328). Hence, in addition to interrupting trade during the time of the conflict, the Civil War also had a substantial impact on the post-war maritime economy. Furthermore, robbed of an overwhelming majority of the able-bodied workforce, manufacturing was limited to the production of war goods to support the army. The city of Portland sent 5,000 men to fight in the war, with more than 400 sacrificing their lives in battle (Dibner, 1986, p. 54).

An additional threat that persisted throughout the course of the Civil War was that cities in both the North and South were left vulnerable to attack. In this regard, despite its remote location, Portland was no exception. A strategic location for shipping and receiving war supplies, “Portland’s transportation capabilities were vital to the fight for [the] Union and the

Confederates knew it” (Robinson, 2007, p. 56). Despite being hundreds of miles from the battlefield, the city of Portland represented a strategic target for the Confederacy.

In 1864, Confederate Naval Lieutenant Charles Read embarked on an unexpected path of destruction, which began when he raided a ship near the Chesapeake Bay and continued northward. En route to Portland, Read burned, sank, or captured nearly two dozen other vessels, all while evading Union gunboats that had been alerted of the presence of a Confederate raider (Duncan, 1992, p. 333-334). After an unsuspecting fisherman invited Read aboard for dinner, the Confederates followed the ship back to Portland, where they proceeded to capture the gunboat *Caleb Cushing*, and came ashore intent on setting fire to the city (Robinson, 2007, p. 56). Fortunately, Read and his men did not have enough time to execute the plan before dawn and were therefore forced to bring the *Caleb Cushing* back out to sea. When the city mayor and customs collector became aware that the vessel was missing, they commandeered two ships to chase after the *Caleb Cushing*, eventually capturing Read and taking him prisoner (Duncan, 1992, p. 334). Later referred to as the Battle of Portland Harbor, this confrontation was a perilous encounter that almost resulted in tragedy, as confirmed in the following account:

Lt.[Read] later surmised that if he could have just set a few of the wharves on fire a sweeping breeze would have done the rest. Unfortunately for him, the night was as calm and serene as the inside of a bell jar. Portland was saved (Robinson, 2007, p. 57).

Ultimately, the events leading up to the Battle of Portland Harbor resulted in a heightened sense of fear throughout the Union. The thought that a rebel pirate, operating with very limited resources, could seize warships and wreak havoc on American cities was truly horrifying. As Robert H. Woods, Chief Clerk of the Office of Naval War Records, confirmed, Lt. Read’s trail of destruction left military personnel with major security issues to address

That one small vessel, with twenty-two men and one gun, and a sailing-vessel at that, should have created such havoc and consternation in the days of steam, whilst forty-seven vessels (mostly steamers) were scouring the seas in search of her, is enough to make old Virgil rise up from his ashes and exclaim, "Mirabile dictu!" But what could a modern fast cruiser of twenty-five knots, commanded by a resolute officer, and accompanied by a fast supply-vessel, do on our defenceless coast? And how are we prepared for such an emergency in case of war with a maritime nation? These subjects I leave to the consideration of those who have the fighting to do, and those who have to provide the fighting-machines (Woods, 1895).

Overall, unlike World War I and World War II, which were fought on foreign soil and served as somewhat of an economic catalyst, the level of destruction inflicted by the Civil War was a major hindrance to New England's regional economy. After the Confederacy surrendered at Appomattox Courthouse in 1865, the city of Portland attempted to return to normalcy, as much of the rest of the country was forced to struggle with the implications of Reconstruction. On July 4th of the following year, the city was preparing to celebrate its second Independence Day since the end of the war. Popular war hero Joshua Chamberlain was running for governor and things appeared to be looking up for the once prosperous city (Robinson, 2007). That evening, however, a fire was started in a downtown boatyard. The cause of the fire is to this day unknown, but it has been speculated that it was caused by either a flicked cigar ash or possibly a firecracker (Dibner, 1986 and Robinson, 2007). Regardless of the cause, the effects of what is today referred to as The Great Fire were truly devastating. A strong wind caused the fire to spread throughout the downtown, burning nearly 320 acres, while reducing one-third of the city to ash in barely 36 hours (Robinson, 2007, p. 69). As a result, Portland lost an estimated 1,800 buildings, leaving close to 10,000 local residents homeless. The loss of property was valued at approximately \$6 million dollars, but even more devastating—at least in retrospect—was the destruction of irreplaceable historic landmarks (Dibner, 1987, p. 59).

With hundreds of citizens living in tents provided by the United States Army, the city began re-building almost immediately. It would be a difficult journey, hampered by a major economic recession during the 1870s, but the city of Portland was poised to return stronger and more powerful than ever before.

CHAPTER 4 - The Emergence of Industrial Portland: 1880-1910

Picking up the Pieces

Desolated by The Great Fire of 1866, city leaders used this tragedy as an opportunity to reshape their once thriving city. Local businessmen invested heavily in re-building the downtown, constructing magnificent Victorian-style buildings in the old financial district. Block by block, the city was rebuilt with the distinctive three and four story brick buildings that, to this day, define Portland's unique urban character. The transformation of the city was, in fact, so profound that prominent art critic John Neal declared the city had emerged from the fire at least fifty years ahead of where it would have been otherwise (Dibner, 1986, p. 64). As the following quote indicates, Portland's extraordinary recovery was largely the result of forward-thinking leadership and a commitment to urban planning:

The possibility of a central urban vision, with new brick buildings, a water system, parks, and open spaces, was taken up by a new generation of leaders including architect John Calvin Stevens and political progressive James Phinney Baxter. By the 1880s these leaders began to formulate plans for what Portland could become. In the years that followed they would draw not only on their considerable talents, but on the advice and ideas of nationally known experts such as the Olmsted Brothers. In other words, national developments such as such as the "City Beautiful Movement" informed the urban vision of Portland's civic leaders, whose legacy remains imprinted on the public landscape (Conforti, 2006, p. 248).

The commitment of city leaders to this progressive vision paid enormous dividends, as Portland's new urban landscape augmented its pre-existing transportation linkages and helped restructure the local economy. Union Station was built, providing the city with both a distinguishable landmark and a modern rail terminal to support the growing railroad industry. The waterfront was also rebuilt to provide a new retail and commercial center for Portland's

growing population. A new \$485,000 dollar granite building was also constructed to house the port's collector of customs, replacing what had previously been a pine shed (Dibner, 1986, p. 65). Just a few years after The Great Fire, the city was completely rebuilt. Equipped with new buildings, new infrastructure, a new system of parks, and a new vision for the city, Portland ushered in an era of economic prosperity that would last until World War I (Dibner, 1986).

Economic Prosperity & Portland's First Family

Portland's economic resurgence during the late-19th century was, once again, largely the result of its transportation capabilities. During the 1870s, the city continued to expand upon its rail network, establishing direct connections to Boston, Rochester, and New York City, as well almost every other town in Maine, New Hampshire, and Vermont along the way. By 1872, sixty-five trains arrived in Portland each day (Dibner, 1986, p. 65). The growth of the railroad sector enabled the city to maintain its status as a shipping and freight hub, while also laying the foundation for a new industrial sector.

Established by future Mayor James Baxter in 1863, the Portland Packaging Company became one of the city's most successful manufacturing and distribution businesses during the industrial era. Specializing in exporting tins of vegetables and seafood, Baxter's company netted more than \$200,000 dollars in profits just a decade after opening (Robinson, 2007, p. 77). In addition to being Portland's richest man and largest employer, Baxter made contributions to the city run far deeper than his business legacy. A noted philanthropist, he was a key leader in establishing Portland's system of parks and even built the city's first public library using his own private funds (Robinson, 2007, p. 79). With the help of his son, Percy Baxter—who followed in his father's footsteps and later became mayor himself — James Baxter was instrumental in the redevelopment of both Monument Square and Back Bay Boulevard, since named Baxter

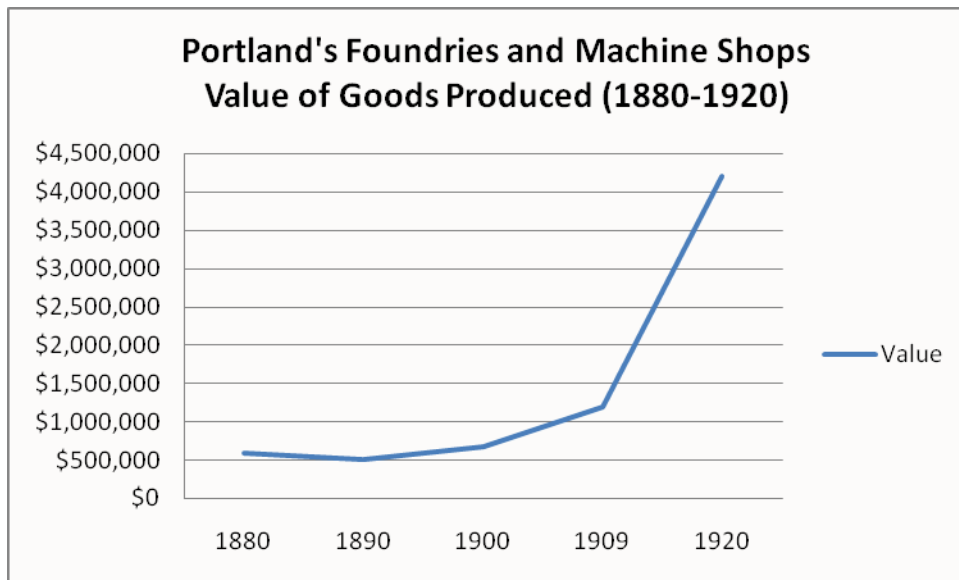
Boulevard in his honor. After his father's death, Percy continued to use the family fortune towards improving the city. After attempting to persuade the state legislature to buy nearby Mount Katahdin to preserve its forests from eager logging companies, Percy bought the mountain and a quarter-million acres of the surrounding land on his own (Robinson, 2007, p. 82). This gesture served as the equivalent of a conservation easement, ensuring the land would not be exploited for its natural resources. To this day, the land remains untouched.

Throughout their respective public lives, James and Percy Baxter played an active role in guaranteeing that amid the city's rapid economic growth, Portland's natural and historical elements would not be marred by overzealous business interests. The leadership of James Baxter, in particular, was among the most important factors in helping the city fulfill the vision that arose from the ashes of The Great Fire. Hence, during an extended period of prosperity that spanned most of the late-19th and early-20th centuries, Portland's leading industrialist (turned politician) was also its biggest advocate for responsible land development.

Heavy Industry & Manufacturing

During the 1880s, Portland began to experience an influx of manufacturing sectors, including steel, railroad supplies, electrical goods, and paper (Hornsby and Reid, 2005, p. 178). The metalworking industries were of specific importance to the city, as they were directly tied to the transportation developments of this era. Portland first attracted foundries and steel factories during the late-1840s and early-1850s, when the first tracks were laid for the Grand Trunk line. Two decades later, as steamships began to replace traditional sailing vessels, Portland was uniquely situated to build and repair these engines. Likewise, as the dominant economic center of the region, Portland began to manufacture the steam engines that would replace water wheels in mill towns across northern New England (Hornsby and Reid, 2005, p. 183). Thus, at a time

when Portland's viability as a major port was again threatened by the disappearance of wood sailing ships, the city managed to gain a comparative advantage, relative to the newest transportation technology. The growth of local foundries, initially concentrated in producing steam engines, also enabled local manufacturers to tap into expanding consumer markets for other related metal goods, such as stoves, tools, copper, and tin (Hornsby and Reid, 2005, p. 183). This growth of the metalworking industries is illustrated in the figure and table below:



(Source: U.S. Census Bureau, Hornsby and Reid, 2005)

Figure 4-1: The Rise of Portland's Metalworking Sector (1880-1920)

Portland's Foundries and Machine Shops (1880-1920)					
	1880	1890	1900	1909	1920
Firms	8	12	18	21	18
Capital Invested	\$527,000	\$1,302,949	\$1,179,487	\$1,615,000	\$3,006,169
Employees	421	404	528	483	710
Value-Added	\$85,412	\$54,179	\$130,027	\$587,000	\$2,354,246

(Source: Adapted from Hornsby and Reid, 2005)

Table 4-1: Employment and Capital Investment in Portland Metalworking (1880-1920)

As shown on the previous page, the city's industrial sectors experienced a period of sustained growth during the late-19th and early-20th century. By 1920, Portland employed more than 2,010 workers in metal and machinery manufacturing, at a time when the population was just under 70,000 residents (Hornsby and Reid, 2005, p. 192). It should be noted that much of the growth experienced between 1909 and 1920 can be attributed to wartime defense contracts, which will be discussed in greater depth within Chapter Five. Nonetheless, these industries, in and of themselves, attracted massive amounts of capital investment, thousands of new workers, and helped diversify Portland's previously narrow economic base. In comparing the metalworking industries in Portland to the competing port of Saint John, New Brunswick, Robert H. Babcock surmised the following, with regards to Portland's comparative advantages:

At first, the second Industrial Revolution exerted a deleterious impact upon the two cities' foundries and machine shops, reshaping both urban economies by consolidating the manufacture of railway locomotives and rolling stock into... central Canada and the United States. But then, large amounts of new U.S. "monopoly capital" poured into the Maine city's timber-rich hinterland... thereby creating new opportunities in Portland's metal-working shops to manufacture machinery and tools. At the same time, the expanding New England resource towns enlarged Portland's regional market for consumer goods (Hornsby and Reid, 2005, p. 198).

As Babcock's assessment of the period indicates, Portland's success in maintaining a strong manufacturing sector was not simply a windfall of attracting the Grand Trunk Railroad. Rather, Portland's prominence as a regional economic gateway—established through its early transportation linkages—is what enabled metalworking industries to thrive, even after railroad capital moved west. These labor-intensive industries subsequently created a base of manufacturing and attracted a skilled workforce that would serve the city well in attracting defense-related industries during the 20th century.

Steam Ships

While only briefly mentioned up to this point, the widespread embracement of steam-powered ships during the mid and late-19th century played a major role in re-shaping the city's port economy. Widely adopted in the early 1800s, steamboats were first introduced to a skeptical audience. Confirming this notion, Duncan (1992) remarks that "like the early airplanes, the first steamboats were considered but a fad that would soon be forgotten—at best rather dangerous amusement" (p. 308). Despite this early reluctance to embrace the technology, steam-powered ships would revolutionize the shipping industry within just a few decades. Initially confined to rivers and canals, ocean steam vessels also became prevalent by the end of the century. Larger, safer, faster, and more reliable than sailing vessels, steam-powered ships increased the economic efficiency of transatlantic shipping by an exponential proportion.

As a major port and railway hub, the city of Portland was able to successfully integrate its existing transportation infrastructure with the new transatlantic routes made possible by steam-powered ships. According to Dibner (1986), the Grand Trunk line provided a major impetus for steamship travel, serving as the primary linkage for Canadian wheat being exported to Europe (p. 68-69). To accommodate this growing demand, the Grand Trunk Railway Company constructed three massive grain elevators on Portland's waterfront. In 1899 the wheat export reached its peak, when nearly 22 million bushels of grain were received through Portland Harbor (Dibner, 1986, p. 67).

In addition to handling millions of tons of cargo destined for Europe, Maine steamships also became a very important mode of personal transportation. As the following passage explains, the steamship was a major breakthrough for passenger travel:

...[T]here was a real and continuing need for steamboats on the Maine coast. Roads were few, unpaved, and very rough. Furthermore, because the coast lies in a great arc

facing southeast from Boston to Eastport, it is much shorter to cut across by water... than it is to come by road. While sailing packets could take a week or very much longer to beat up to Boston, a 10-knot steamer could make the run overnight and provide passengers with a good dinner and a comfortable bunk (Duncan, 1992, p. 310).

Given the state's rugged terrain, steamships offered the first legitimate form of commuter transportation. During the 1890s, tri-weekly ships left Portland for both Bangor and New York, with daily runs to and from Boston. In addition, seven regular transatlantic steam lines also operated out of Portland (Dibner, 1986, p. 68-69). A consequence of its location, as well as the increased volume of passengers moving through the city's harbor, Portland became a major entry point for foreign immigrants. As early as the 1840s, Portland began to see an influx of Irish immigrants, who left their native country because of the Great Famine. By the end of the century, however, Portland began to experience an additional wave of Italian, Armenian, Greek, Polish, and Eastern European immigrants (Conforti, 2005, p. 194). During the 1890s, more than 4,000 foreign immigrants entered the United States through the city each year (Dibner, 1986, p. 69). Many chose to remain in Portland, creating some of the city's first non-Irish ethnic neighborhoods, while also supplying cheap labor for many local industries.

The Rise of Paper Mills across Northern New England

During the 1880s, a major technological breakthrough in the process of creating paper pulp from wood fibers breathed new life into the state's timber industry (MPPA, 2007). While Maine lumber remained competitive in national markets into the 20th century, this sector became an export-dominated industry, as the steamship rendered local shipbuilding comparatively obsolete. This "fortuitous emergence" of the pulp and paper industry created an economic stimulus that permeated the northern New England hinterland, creating new jobs and triggering capital investment (Hornsby and Reid, 2007, p. 199). With the region's largest supply of timber,

Maine was the greatest beneficiary of this new industry. Connected to external markets through Portland's transportation linkages, "the state's abundant woodlands and waterways provided cheap log transportation and hydroelectric power necessary for pulp and paper production, and soon, entire new cities in the Maine wilderness were created to serve the industry's needs" (Maine Folklife Center, 2006). Similarly, a new wave of mill towns also appeared across Massachusetts, New Hampshire, Vermont, and upstate New York, creating a new regional economy.

Attracted by Maine's obvious natural advantages, President Grover Cleveland led a team of investors into the state to explore potential mill sites across central Maine (MPPA, 2007). In slightly more than two decades, between 1885 and 1906, the state grew from just 21 pulp and paper mills to 109. This rapid increase in paper manufacturing caused more than half of Maine's annual timber cut to be consumed by the paper milling industry by 1900 (Maine Folklife Center, 2006). During the same year, the Great Northern Paper Company opened a newsprint manufacturing site in Millinocket, which at the time of its opening, was the largest paper mill in the world (MPPA, 2007).

A second primary advantage in paper production, unique to northern New England, was the region's ability to vertically integrate its factors of production. Ohanian (1993) expounds that "vertical integration exists when two stages of production are performed within the same firm. Specifically, a firm is vertically integrated if production of the 'upstream' (earlier stage) process is dedicated in the 'downstream' (later stage) process" (p. 90). In late-19th and early-20th century paper milling, the two stages of production were quite simple: the production of pulp represented the "upstream" process, while the manufacturing of paper from pulp was the "downstream" process. These stages in the paper milling process were also tied to backwards

linkages (extraction of timber) and forward linkages (marketing of the finished product). Accordingly to Ohanian (1993), the central rationale for trying to vertically-integrate these processes was that firms could produce the upstream inputs at a lower cost internally, rather than purchasing them from an outside source. While these efficiency gains had to be weighed against the capital costs of integration, they typically resulted in long-run cost savings (p. 91).

Fortunately, market trends during the early-20th century indicate that more paper firms were integrating backward, in order to maintain control of timber supplies and avoid exploitation at the hands of external suppliers (Ohanian, 1993, p. 94). These market conditions played perfectly to Portland and the state of Maine's natural advantage, given the abundance of productive forests throughout the region. During this time, the majority of integrated mills were located in sparsely populated areas, as it was more cost-efficient to transport finished paper goods than heavy raw pulpwood (Ohanian, 1993, p. 98). While this led to high levels of vertical integration in the western United States, it was also beneficial to Portland, given its remote northern location and rural hinterland. As a result, there were compelling economic incentives to build vertically-integrated paper plants close to New England's forests and then ship finished outputs to regional transportation hubs for national distribution.

A third market condition that was directly beneficial to northern New England in attracting capital for paper manufacturing was the "economies of scale" effect—or lack thereof— associated with paper milling. The basic economic theory behind the existence of "economies of scale," is that, under most conditions, large firms are able to produce goods at a lower cost than small firms. One of the central tenants of this economic principle is that capital-intensive industries, such as manufacturing, typically have high start-up costs, otherwise known as barriers to entry. These costs may include purchasing expensive machinery, constructing

large facilities, or securing shipping contracts. Therefore, economies of scale generally result in higher levels of market concentration. This, in turn, creates a market dominated by a few large firms, typically clustered in large population centers.

At first glance, the early-20th century paper milling industry would appear conducive to a concentrated market. However, research by Ohanian (1993) indicates that, contrary to this conception, paper mills operated in a "...competitive industry structure, with low barriers to entry" (p. 51). This contention is supported by evidence of fluid market entry, frequent takeovers, and competitive pricing. In 1900, the top four paper production firms controlled only 25-percent of the national market share. By 1920, this market concentration had been cut in half, with the four largest firms controlling only 12% (Ohanian, 1993, p. 75). Because of these industry dynamics, it was possible for independent paper mills to thrive in small towns, without losing market share to monopolistic competitors. As the dominant economic center of the region, the capital investment provided by the paper mills had a direct windfall for the city of Portland.

Poised to capitalize on the economic development of its rural hinterland, Portland's extended period of economic growth, lasting until roughly 1910, would be hastily overturned by the events of the coming decades. Still, the imprint of the city's remarkable recovery from The Great Fire of 1866 and the ensuing economic renaissance remain preserved in the city's architecture and urban fabric.

CHAPTER 5 - Surviving the Depression and Two World Wars

Initial Decline

After a period of sustained economic prosperity, the city of Portland began to experience an erosion of its regional economic clout by the mid-1910s. This loss of power was primarily attributable to two inter-related forces: technological innovations that undermined the importance of Portland's strategic location and a volatile national economy. With regards to new technologies, the early-20th century marked the beginning of a new age in North America commerce. With the advent of telephones and automobiles, businessmen were able to live farther away from their factories and shops. These factors, combined with the rise of balloon-frame housing during the late-19th century and the abundance of land on the periphery of the city, had a significant decentralizing effect. Ultimately, as Robinson (2007) explains, "the introduction of personalized communication and transportation heralded the end of a city built for face to face interactions, pedestrians, and mass transit" (p. 87). Thus, Portland's importance as the commercial center of northern New England was significantly reduced.

At the national level, macroeconomic conditions were also unfavorable for such a small, geographically-remote city. First and foremost, the early-20th century was the peak of an anti-competitive, monopolistic business climate throughout the United States. While "trust-busting" legislation was a cornerstone of both the Roosevelt (1901-1909) and Taft (1909-1913) administrations, less competitive national markets were an inevitable result of new economic developments, as described below:

A significant feature of the early 1900s was growth in the average size of establishments. This size increase was made possible by, among other factors, the heightened availability of electricity and growth in the size of markets for goods. Larger establishment size

tended to provide economies of scale and reduce competition (Bureau of Labor Statistics, 2003).

As the United States continued to grow, increasing levels of market concentration were disadvantageous for small, highly-localized regional economies. Although Portland still maintained vital transportation linkages, New England's overall importance within the national economy was challenged by the growth of the Midwest and West Coast. These regional population trends greatly reduced Portland's ability to manufacture and sell goods in nationally-competitive markets. To illustrate this effect, consider that as recently as 1870, Portland was among the 40 largest cities in the United States, with a population greater than the likes of Dayton, Nashville, and Atlanta. Within just four decades, however, the city barely ranked among the top-100 United States cities, and was no longer even the largest city to call itself Portland (U.S. Census Bureau, 1998). The stagnation of New England, relative to the rest of the United States, presented a substantial economic hurdle. Although the region's growth rate had lagged well behind the rest of the United States since the 1850s, the dawn of the 20th century marked a harsh decline, specifically for Portland's northern hinterland, as described in the following passage:

The gross growth rate for New England masks important differences between individual states. The steady decline in New England's growth rate from 1890-1930 was by no means experienced by all six states. For the most part, the total New England rate was pulled down by steady, rural losses in Maine, New Hampshire, and Vermont... The three southern states, on the other hand, tended to experience higher growth rates, often higher than the nation. (Lewis, 1972, p. 310).

This quotation presents one of the many consequences of industrialization and economic specialization across northern New England during the early-20th century. While rail lines, logging operations, and paper mills injected capital into some small towns, the northern region—

as a whole— lost population, due to the demise of small farms and the loss of textile mills to southern states. With the exception of population centers in Portland, Portsmouth, New Hampshire, and Burlington, Vermont, the rest of northern New England experienced widespread decline during the early-1900s.

Finally, it should be noted that the turbulence of the early-20th century economy was exacerbated by a meltdown of national financial markets, caused by a series of bank panics and a mismanagement of the federal money supply (Moen, 2001). As a result, the United States endured three distinct recessions between the turn-of-the-century and World War I, spanning the years 1902-04, 1907-08, and 1910-12 (VanGiezen and Schwenk, 2003). The cumulative effect of these events significantly weakened Portland's industrial economy.

World War I

Although the United States did not enter World War I until 1917, the outbreak of fighting on the Western Front forced the United States to re-evaluate its military strengths. Specifically, Duncan (1992) explains that “although President Wilson was trying valiantly to keep the United States out of the European war, it became obvious that the Navy needed modernizing and strengthening” (p. 464). For this reason, Portland began to receive defense-related investment in local shipbuilding industries as early as 1914. Specifically, Bath Iron Works Ltd., located in the nearby town of Bath, became one of the country's leading manufacturers of destroyer battleships (Duncan, 1992, p. 464-465). This re-emergence of the shipbuilding sector was not isolated to the production of iron war ships. Compelled by inflated wartime freight rates, Maine shipyards also returned to building wood sailing vessels, which were again briefly profitable between 1914 and 1920 (Duncan, 1992, p. 467). The resurrection of Portland's slumping manufacturing sector had two distinct positive effects for the local economy. First, it created new jobs along the

waterfront, which helped breathe new life into the port (Robinson, 2007, p. 87). Second, the local manufacturing of ships generated new demand for raw materials, such as steel and timber. Reinvigorated by defense spending, the factors of production associated with shipbuilding temporarily re-ignited an economic multiplier effect, similar to the one responsible for Portland's rapid growth decades before.

Unfortunately, the economic stimulus provided by World War I was short-lived and, consequently, somewhat of a mixed-blessing. With 32,000 Maine soldiers enlisted in the military, the region lost a large proportion of its able-bodied workforce (Robinson, 2007, p. 87). Therefore, a majority of the job growth was concentrated in temporary, defense-related industries that employed mercenary workers. This contributed very little in the way of long-term, sustainable economic development. According to Duncan (1992), "after the war, freight rates collapsed, building contracts were canceled, and very few new vessels were built. Coastal towns turn to fish, lobsters, and summer people" (p. 469). Relegated to repairing paper mill machinery and locomotives, Bath Iron Works Ltd. briefly went bankrupt in 1925, as the local shipbuilding industry all but collapsed (Duncan, 1992, p. 469-470). Unbeknownst to locals at the time, these dormant facilities would be resuscitated just two decades later, in order to serve the United States in another major armed conflict. In the meantime, however, Portland residents would endure several more lean years. On the whole, the net effect of World War I on Portland's economy was analogous to the expression "one step forward to take two steps back."

Enduring the Great Depression

Beginning in 1929 and lasting through much of the 1930s, The Great Depression was a severe economic downturn that originated in the United States, but eventually spread to Europe and Latin America as well. It is widely considered the worst economic collapse of the industrial

era. While the effects of The Great Depression were felt worldwide, this period was particularly harsh for Portland, as the duration of hardship began earlier and lasted longer than most areas in the United States.

As previously mentioned, Portland was already in decline before the onset of The Great Depression (Conforti, 2005, p. 274). As Robinson (2007) illustrates “between 1919 and 1941, the real income of Portland citizens dropped fifty percent. In other words, the city imploded” (p. 91). Although the impact of widespread unemployment had a similar effect on other cities, Portland also sustained a major blow that threatened its viability, both as a port and railroad hub. In 1923, the Canadian parliament enacted a tariff policy intended to redirect shipping routes to its ports in Halifax and Saint John (Conforti, 2005, p. 275). Within just a few years, Portland’s longstanding status as the winter port of Canada was gone. City leaders attempted to attract more shipping business by reinvesting in port facilities, only to experience limited, short-term success. Already mired in an economic slump, the loss of Canadian shipping on the eve of The Great Depression was the death knell for the local industry. By 1932, passenger service to Boston was discontinued, signaling a total freeze in regional commerce (Conforti, 2005, p. 276).

The sudden loss of cargo shipments from Canada was a devastating blow to Portland’s economy, one which would be felt long after the end of The Great Depression. Since the first tracks of the Grand Trunk Line were laid, Portland’s rail and shipping industries had been highly interdependent. The rail industry prospered because Portland was a terminal location, both for outbound cargoes from Canada, as well as inbound cargoes from Europe. Likewise, shipping depended on the city’s railroad connections to distribute products throughout the region. Without the advantage of serving as Canada’s primary winter port, Portland was placed at a distinct disadvantage against larger population centers within the region. Thus, as the local

economy began to crumble, so too did its mutually-supporting transportation linkages. When the rest of the country returned to prosperity during the late-1940s and early-1950s, Portland would remain in a prolonged economic rut. To this extent, The Great Depression destroyed Portland's most important comparative advantage.

Roosevelt's New Deal & the Outbreak of World War II

Economists have long debated whether President Roosevelt's massive spending program, The New Deal, was responsible for ending The Great Depression, or if this recovery was accelerated by wartime defense spending. In the case of Portland's swift, albeit brief economic resurgence, the answer is probably a combination of both. Initial employment relief came in the form of the Works Progress Administration (WPA), which employed nearly 11,000 Maine residents at the height of the depression (Conforti, 2005, p. 278). In addition to creating many jobs and commissioning new construction projects, the WPA also provided much-needed relief to poor families. Hence, even if the broader macroeconomic implications of The New Deal remain unclear, Roosevelt's workers programs lifted the country out its state of idleness and provided a very important morale boost.

After the outbreak of fighting in Europe began in 1939, the United States again braced for an imminent conflict. Within two years, both the Soviet Union and United States had been separately attacked and were engaged in war with the Axis powers. For the second time in little more than two decades, Portland was the recipient of a massive wartime stimulus. According to Conforti (2005), the United States military ranked Portland Harbor as "the most important port in the continental United States because of its proximity to Europe" (p. 281). Accordingly, the city received a massive infusion of spending to upgrade the harbor's facilities. Between 1940 and 1941, Maine defense spending increased by more than 250-percent, to \$500 million dollars

(Conforti, 2005, p. 281). During this time, a wave of new workers and military personnel came to support the war effort. And, by the end of the 1940s, the city reached its all-time peak population, approaching nearly 78,000 residents.

Once again, shipbuilding was the backbone of the wartime boom. Bath Iron Works returned to prominence, building destroyers and freight ships that served on battle fronts across the world (Duncan, 1992, p. 475). The construction of a new shipyard in South Portland was also commissioned to fulfill a \$100 million dollar contract to supply ships for the British Navy (Conforti, 2005 and Duncan, 1992). The shipyards in Bath and South Portland would later be incorporated as the New England Shipbuilding Corporation, with a peak employment of 30,000 workers (Conforti, 2005, p. 282 and Duncan, 1992, p. 476-478). Not only was the scale of the local shipbuilding operation unprecedented, but the efficiency was also remarkable. At their peak, the two shipyards were manufacturing a new ship every six days (Robinson, 2007, p. 93). Duncan (1992) supports this assessment, writing:

The speed with which these ships were built was also impressive. In World War I, four months had been a record-breaking time for the construction of a 10,000-ton freighter. South Portland's fastest time for building the Ocean-class ships for keel-laying to delivery was ninety-seven days, fifty-eight from keel-laying to launching (p. 476)

After suffering through a prolonged economic slump, the city was revived by massive amounts of defense-related spending. In this sense, the impact of the World War II was very similar to that of the World War I, only amplified on much greater scale. Hundreds of millions of dollars in government contracts provided new infrastructure, constructed new housing, and created more well-paying jobs than the local workforce could fill. However, in the same way this period of prosperity mirrored that of the First World War, a nearly identical parallel can be drawn to the subsequent post-war decline. After World War II finally ended in August of 1945,

military spending dried up and city was forced to address its deteriorating economic base. In addition to the loss of manufacturing, the city's waterfront and downtown retail district also suffered, facing increased competition from the surrounding suburbs (Conforti, 2005, p. 290). While the rest of the United States entered what is often referred to as the "Golden Age of American Capitalism," the city of Portland would slip further into decay.

Of Pipelines and Planes

Although Portland's imminent post-war decline was partially a result of its diminished role as a transportation hub, the city did acquire two additional infrastructure resources that would be of vital importance later in the 20th century. The first such acquisition was the privately owned Stroudwater Airport, which the city council purchased in 1937. Given the economic climate of the time, this was an extremely bold and controversial expenditure by the city council (Conforti, 2005, p. 280). The purchase of this facility, which was renovated and renamed Portland Municipal Airport, demonstrated the impressive vision of city leaders during The Great Depression and World War II. While Portland Municipal Airport would not immediately rescue the city from its post-war despair, it would later become an immensely valuable asset in the creation of the region's post-industrial economy.

The second crucial transportation linkage that was established during this period was the construction of the Portland-Montreal Oil Pipeline in 1941. With oil tankers being sunk by German ships, the Standard Oil Company contracted a massive pipeline to be built from Portland to Montreal (Conforti, 2005, p. 281). It was declared to be the "first national defense pipeline," allowing crude oil to be delivered from Texas to Montreal in a mere eight days (Robinson, 2007, p. 94). Much in the same way the Grand Trunk line generated winter commerce, the Portland-Montreal Oil Pipeline also allowed for oil to be delivered during the months when the Saint

Lawrence was frozen (Conforti, 2005, p. 281). In addition to creating thousands of new jobs, the pipeline also saved the city's port from becoming obsolete. As infrastructure was built to increase capacity and efficiency through the 1960s, the Portland-Montreal Oil Pipeline would serve as a major economy catalyst in the late-20th century.

Acquired independent of one another during the lead up to World War II, Portland Municipal Airport and the Portland-Montreal Oil Pipeline would eventually supplant the defunct Grand Trunk connection and the regional rail network as the city's dominant transportation linkages. Without these corresponding developments, the city's eventual post-industrial reawakening may not have been possible.

CHAPTER 6 - Post-War Decline (1950-1979)

Urban Renewal

The decades immediately following World War II were not kind to Portland. Stripped of its status as Canada's primary winter port two decades earlier, both the rail and shipping sectors collapsed after the departure of wartime industries. With a slumping local economy, people began leaving the city in droves—between 1950 and 1970, Portland's population decreased by more than 16-percent. In the process, the once-thriving Old Port and central business district turned into something of a ghost town. Describing this post-war exodus Robinson (2007) remarks that "Portland dropped into an economic abyss. Everybody who could get out, did get out. The shipyards stopped building freighters. The railroads dramatically scaled back their schedules. The Old Port was abandoned" (p. 99). In response to this crisis, city leaders implemented an ill-advised urban renewal strategy, through the newly-created Slum Clearance and Redevelopment Authority (Bauman, 2006, p. 18).

Ironically, though the goal of city leaders was to eliminate blight, the implementation of their post-war urban renewal strategy would permanently scar the city's built environment. After lengthy legal battles over local government's authority to exercise eminent domain, the planning board eventually initiated its wide-scale redevelopment plan in 1957 (Bauman, 2006). In the process, the clock tower at Union Station was destroyed, the downtown Post Office was demolished, and ethnic neighborhoods were bulldozed (Robinson, 2007, p. 100). When the dust had settled, a large part of the city's historical identity and urban fabric had been irreparably damaged.

The failure of this urban renewal effort is mainly attributable to the undemocratic and indiscriminate nature with which it was thrust upon the city. The re-development strategy was not conceived as a grassroots initiative, but dictated by a heavy-handed planning board, standing directly at odds with both the Portland Chamber of Commerce and the community at large. This dynamic is described by Bauman (2007) in the following passage:

Few questioned the legitimacy of the goal of slum riddance. It was the means that stirred political controversy. Until 1961, a council-manager form of government ruled Portland. And, like Maine as a whole, which had fiercely resisted the blandishments of the New Deal, the city was stubbornly conservative. Nevertheless, Portland in 1941 had launched the city planning process, and its postwar planning board reflected a typical civic-mindedness, tinged in the Forest City by both elitist noblesse oblige and a solid dose of Progressivism (p. 16).

As this quotation explains, the social and political ideologies held by members of Portland's planning board were not shared by a majority of local citizens. As a result, the city was subjected to a wave of urban renewal that displaced residents—who had no voice in the process—and, quite frankly, did not make sense. The lack of coherence in the city's urban renewal strategy was evident, among other places, in the razing of the former Bayside neighborhood. To this end, Bauman (2006) explains “as early as March 1944, Portland had proclaimed that “Bayside Needed Rebuilding”; thirteen years later, the bulldozers arrived. Yet, the same 1943 [APHA] report that triggered Portland's redevelopment conversation candidly admitted that Bayside hardly met the criteria for being a first-class slum” (p. 2). Thus, Portland's urban renewal strategy failed to identify clear objectives and was enacted without regard for citizen input or historical assets. The result was nothing short of a tragedy.

Portland's urban renewal and redevelopment strategies were intended to rehabilitate declining neighborhoods to create opportunities for new investment. Unfortunately, these efforts did little to improve economic conditions during the 1950s and 60s. Along the way, historical

landmarks and diverse neighborhoods were paved over to build strip malls (Robinson, 2007). In the ensuing years, the city was gripped by a cycle of disinvestment, partially triggered by two gradually-related economic developments: the fall of the North American rail economy and the loss of paper mills across northern New England.

Demise of the Railroad Economy

During the 1950s, it became increasingly clear that the personal automobile would replace rail as the dominant mode of ground transportation. With the enactment of the 1956 National Interstate and Defense Highway Act, President Eisenhower solidified the country's commitment to the automobile with a multi-billion dollar investment to construct a 37,000 mile national highway network (TMIP, 2008). This new interstate system, combined with the effects of federal housing policies during the late-1940s and early-1950s, permanently altered the physical landscape of the United States. The resulting land development patterns, which can be broadly described as "suburbanization," created a new hybrid of cities and towns that undermined the importance of central cities. Much in the same way that rail corridors made the fortunes of some fringe settlements during the 19th century, the federal interstate system would effectively re-define the post-war North American urban form. Ultimately, the proliferation of Levittown subdivisions, suburban shopping centers, and auto-oriented development would destroy the modern rail economy.

Although local rail commerce had been in decline since the loss of the Grand Trunk connection in 1923, Portland retained a considerable, albeit reduced role as the central rail hub of northern New England through the 1940s. In this sense, the city continued to serve as a repository for surplus capital, as much of the region's remaining rail infrastructure ran through Portland. Of specific importance, were the tracks maintained by the Maine Central Railroad

Company, which, in addition to servicing the northern two-thirds of the state, also operated a key paper and timber line from St. Johnsbury, Vermont to Portland. An image of this regional rail network is shown on the following page, in **Figure 6-1**.

During the early-1950s, Maine Central invested heavily in developing high speed passenger service between the cities of Bangor and Boston; a route which ran directly through Portland (IDCH, 1997). The intent was to re-establish some of the regional connectivity that was being lost, as the region's industrial economy slowly faded after the war. For nearly a century, Portland had been a strategic commercial and industrial center along the rail network. However, in the post-war economy, the rise of trucking made Portland an increasingly remote location, as the 100 mile trip to Boston took nearly two hours. The hope was that high speed passenger service would stimulate upstate tourism and provide a direct line of access to Boston for Portland's banking and financial sectors. Unfortunately, the project was a total failure, as described within the following passage:

Troubles piled up upon troubles during the mid- and late 1950s for Maine Central Railroad. In 1956, losses from the company's passenger service exceeded the net income of the entire railroad... By the end of the decade, with a decline in passenger travel of more than 65 percent between 1949 and 1958... Maine Central Railroad terminated passenger service on all Maine Central Railroad routes (IDCH, 1997).

Portland's viability as northern New England's commercial rail hub was indirectly wiped out by the failure of these commuter lines. As the Maine Central Railroad Company struggled to stay afloat during the early-1960s, it was forced to abandon many of its underperforming branch lines (IDCH, 1997). While the cutbacks helped Maine Central rectify its financial standing, the disintegration of these local connections rendered Portland's position as a terminal location on the rail system all but meaningless. In an integrated regional network, Portland was the lynchpin of the northern New England economy (Robinson, 2007). However, after the rail network was

broken apart, the need for this central transportation hub was all but eliminated. A similar trend was observed across the Northeast throughout the 1960s and 70s, as rail lines were rendered obsolete by the automobile.



(Source: American-Rails.com, 2009)

Figure 6-1: The Central Maine Railroad Lines

The Loss of Paper Mills

While local manufacturing was devastated by The Great Depression and the subsequent post-war decline, paper milling was the one industry that consistently grew throughout the early and mid-20th century. Between 1929 and 1939, a period spanning most of the depression, gross

production in the national paper industry grew at a rate faster than the previous two decades, fueled by a sharp increase in the demand for paper products (Ohanian, 1993, p. 20).

As previously discussed, the New England paper industry was not a highly concentrated sector and only a few firms were centrally-located within an immediate radius of Portland itself. However, as the regional center for transportation, banking, and commerce, Portland received a windfall from the capital invested in its northern hinterland. The region's ability to attract a paper mills during the late-19th and early-20th century was largely based on its abundant timber resources and extensive transportation network. With firms able to capitalize on these comparative advantages, the industry trended towards higher levels of vertical integration, with companies consolidating the pulp and paper processes into the same site. Given its proximity to Maine's productive forests, the vertical integration of paper mills across its hinterland was beneficial to Portland, as it meant more capital was being retained within the region.

Unfortunately, the incentives to vertically-integrate in northern New England began to unravel. This movement within the industry can be explained by two basic principles: the industry following the wood supply and the pulp mills following the lumber mills (Guthrie, 1972).

Elaborating on the implications of these economic considerations for northern New England, Guthrie (1972) explains:

[In the latter part of the nineteenth century]... the center of the industry shifted northward, from Massachusetts to Maine and New York... Three decades later, in 1929, the center of the industry had again shifted this time westward. By then, Michigan and Wisconsin had become important paper-producing states... At that date, pulp and paper production in the South and Far West was still relatively unimportant. However, after World War II the picture had again altered. The South had outstripped the Northeast and Lake States in pulp and paper production. During that period, the pulp and paper industry also grew to substantial proportions on the Pacific Coast (p. 4-5).

As this passage indicates, from the late-1920s through the end of World War II, the manufacturing base of the paper industry had gradually moved south and west. Hence, although northern New England and the state of Maine remained very productive papermaking areas, industry dynamics had shifted. Specifically, the region experienced less vertical integration of pulp and paper production—and not coincidentally, less growth—than the rest of the country. Discussing the interregional rail movements of pulp during the 1960s, Guthrie (1972) observes “it is apparent that substantial tonnage moves from the Pacific Northwest and the South to the North Central and Northeast states. The reason for this movement is... that the cost of producing pulp is lower in the Northwest and the South than in other areas” (p. 127). The cause of this regional cost discrepancy was related to the different varieties of timber being harvested, with the West supplying cheaper, non-resinous woods. In this sense, one of Portland’s primary natural advantages was being undermined by resource extraction in the South and Pacific Coast regions. It should be noted that this was not a result of resource depletion in Maine, but a case of superior resources being available elsewhere in the country (Guthrie, 1972, p. 100). As a result, by 1970, pulp production equaled or exceeded paper production in the Pacific Northwest, Mountain West, Deep South, and Southeast (Guthrie, 1972, p. 46). In contrast, paper production in the Northeast far exceeded pulp production, indicating a disintegration of vertically-integrated production, relative to the rest of the country.

Despite losing its comparative advantage in producing pulp, Portland’s hinterland remained competitive in manufacturing paper products through the 1960s. On the following page, **Table 6-1** presents a breakdown of the cost structure for producing bond paper (a common printing and writing paper) in Maine, Alabama, and Washington/Oregon, as of 1964. From this table, we can derive some ominous conclusions regarding the direction of the paper industry at

this time. Much like other manufacturing sectors, the paper industry began to experience an acceleration of the previously-observed regional shift from the Northeast, to the South and West. This phenomenon is often referred to as the “Rust Belt” effect, wherein a convergence of demographic, political, and economic forces created massive job growth in the South, largely at the expense of the Midwest and Northeast. While paper manufacturing is not traditionally considered a rust belt industry, the loss of paper throughout northern New England follows many of the same economic trends that negatively impacted the local economy during the 1970s.

Cost of Producing Bond Paper (U.S. Dollar/Ton)- 1964									
	Wood Costs	Wages/ Benefits	Electric	Fuel	Chemicals/ Additives	Other	Depreciation (5%)	Interest	Total Mill Cost
Maine	30.48	31.06	6.39	4.17	27.78	27.78	18.12	3.49	149.27
Alabama	24.28	35.11	4.21	3.24	25.69	27.78	17.11	3.49	140.91
Wash-Oregon	31.54	34.67	3.13	3.70	27.78	27.78	17.44	3.49	149.53

(Source: Adapted from Ohanian, 1993)

Table 6-1: Paper Production Costs in Maine, the Deep South, and the Pacific Northwest

In this particular case study, bond paper is made from the type of hardwoods that are most abundant in Maine, yet less common in the Northwest. As a result, Maine has a significant cost advantage, relative to the resources available in Washington and Oregon. Still, this resource advantage was completely negated by substantially higher fuel and electricity costs, despite Maine’s lower wages. The combination of these economic forces, combined with the degradation of Portland’s rail network, would lead to a rather abrupt collapse of the paper industry in the following decades.

During the 1960s and 1970s, the paper industry was unique among North American manufacturing sectors, in that it continued to rely on rail as a primary mode for shipping across the contiguous United States. This is largely attributable to the fact that while other manufacturing industries naturally clustered around population centers, paper mills tended to locate in remote areas, closest to the two essential papermaking resources: water and timber. Because these sites were often hundreds of miles from the nearest interstate, paper and pulp manufacturing continued to rely on rail, long after other container shipping industries had switched to trucking. To illustrate this point, consider that in 1966, more than seven million tons of paperboard was distributed by rail from the South alone (Guthrie, 1972, p. 130).

At this time, the paper industry also began to experience more mergers and acquisitions, leading to higher levels of market concentration. A natural response of smaller firms competing in increasingly concentrated markets is to become more specialized—an economic trend that was, in fact, observed within the Maine paper industry (MPPA, 2007). However, specialization requires that firms compete in national and international markets in order to reach a sufficient customer base. Due to its remote geographic location and deteriorating rail network, the northern New England paper industry was no longer properly situated to handle the pressures of interregional and, increasingly, international competition.

The irony of the fall of the paper industry across the northeastern United States is that on the eve of a massive energy crisis, railroad companies were tearing up their tracks, forced into bankruptcy by the dominant trucking industry (Longman, 2009). When gas prices began to spike in 1973, rail offered a potential safety net, as trucking freight costs increased dramatically. Unfortunately, the demise of the railroad economy during the 1950s and 1960s forced railroad companies to tear up thousands of miles of track, which would have had renewed value with the

sudden increase in oil prices. Thus, at a time when the Maine paper industry was already at a disadvantage with regards to fuel and electricity costs, the 1973 energy crisis further weakened its ability to transport its product to other regional markets.

Overall, it would be inaccurate to attribute the loss of paper mills in Maine solely to increased competition or higher transportation costs. Among other things, stringent state environmental regulations passed during the 1970s and a tax policy that was not perceived to be “business-friendly” were also major contributors to the industry’s collapse (Koncell, 2003). Likewise, it is also worth noting that as a predominantly rural industry, the Maine papermaking industry was not as central to Portland’s local economy as, for example, 18th century shipbuilding. Still, the metropolitan-hinterland dynamic is a critical aspect of Portland’s economic history, and perhaps no hinterland activity generated more capital investment and localized prosperity than the paper industry. Even as late as 1970, paper mills employed one quarter of the state’s manufacturing workforce (Maine Folklife Center, 2006). As the regional economic and transportation hub, Portland clearly benefitted from the success of its northern hinterland. Similarly, Portland suffered when the paper industry declined.

With the benefit of hindsight, it becomes clear that the collapse of the paper industry was not a major catalyst for Portland’s prolonged economic recession—the city had fallen on hard times long before the paper industry was in trouble. Rather, the fact that the decline of the paper mills coincided with the nadir of the city’s post-war recession marked an exclamation point on what had been more than 30 years of economic hardship. Along these lines, while the decline of the paper industry was not a central cause of Portland’s economic decline, it was certainly an accelerant. Fortunately, in the coming decades, Portland would rebound, reinventing itself as a

21st century service sector economy. However, for the paper industry—and some might argue northern Maine as a whole—there would be no such turnaround to speak of.

CHAPTER 7 - The Reawakening (1980-Present)

Reinventing Portland as a Quality of Life Destination

Gripped in a three-decade-long downward spiral, Portland began to show new signs of life during the late-1970s and early-1980s. Among the first economic positive indicators was the arrival of a wave of “lifestyle refugees,” attracted to Portland and the surrounding area because of its natural beauty, compact urban form, and low cost of living. This regional demographic trend is explained by Conforti (2005) in the following passage:

The Vietnam War-era back-to-the-land movement propelled young, often highly educated “drop outs” into rural communities in Maine and northern New England. There was also an urban counterpart to this migration. Small, safe cities with inexpensive real estate such as Portland drew educated and creative people. These migrants shunned the fast pace of large metropolitan areas not for rural life but for cities where life could be lived on a more human scale and where individuals, politicized by the Vietnam War and Watergate, could affect civic life... (p. 317).

As this quotation suggests, the disaffected, progressive-minded Baby Boom generation helped reinvigorate the city with new leadership and new ideas. In the coming decades, these well-educated, civic-minded transplants would serve as the employment base for a new post-industrial economy, which would help carry Portland into the 21st century. In the process, this group would make massive time and monetary investments to rebuild the city’s crumbling downtown.

The first area of the city to experience this rebirth would be the Old Port. Once the focal point of Portland’s maritime economy, the Old Port was considered to be one of the least attractive and disreputable parts of the city by the 1960s (Conforti, 2005, p. 317). Amid this decay, however, the area still maintained some of its historical appeal and unique urban charm,

despite the best efforts of the Slum Clearance and Redevelopment Authority. As the United States struggled through a recession during the early-1980s, property values across northern New England plummeted. The appeal of these inexpensive historic properties in and around the Old Port, combined with the influx of affluent lifestyle refugees, triggered new investment in both residential and commercial real estate. Explaining the economic climate that contributed to this surge of reinvestment in the Old Port, Conforti (2005) writes:

Individual investors sparked the Old Port's renewal. After 1981, new tax incentives spurred the renovation of historic buildings. In response to a deep recession and to the flight of investment capital to the Sunbelt, Congress passed the Economic Recovery Act. The legislation offered developers major tax credits to renovate old structures (p. 318).

In many ways, the beginning of Portland's economic turnaround is analogous to the expression "it is always darkest before the dawn." Having reached rock bottom during the 1960s, Portland's natural and historical assets piqued the interest of affluent migrants who saw an opportunity to invest at the bottom of the real estate market. As was the case with virtually all of the city's previous economic triumphs, the renewed sense of vitality that arrived during the late-1970s and early-1980s was assisted by the contributions of forward-thinking city leaders. As early as 1970, when the city was still in the grips of recession, a group of investors created the Old Port Association to combat the local urban renewal movement. By the end of the decade, this organization would succeed in planting trees, adding street lights, building brick sidewalks, and constructing a new parking garage to make the downtown more pedestrian-friendly (Conforti, 2005, p. 318 and Robinson, 2007, p. 103).

City and county government officials were also successful in generating revenue for new major projects. According to Robinson (2007), Portland hired a series of city managers "whose number one priority was to petition the federal government for money" (Robinson, 2007, p. 103).

One of the city's major achievements during this period, jointly engineered along with officials from Cumberland County, was the passage of a bond issue to build an arena adjacent to the Old Port (Conforti, 2005, p. 318). The Cumberland County Civic Arena, a nearly 10,000 seat venue, opened in 1977 and provided the city with an anchor for downtown redevelopment. Local government officials were so adept at lobbying for funds that Robinson (2007) declares "the city was revitalized by pork-barrel projects earmarked by clever Maine politicians to the detriment of the federal taxpayer" (p. 103). In addition to funds from Washington, substantial help was also provided from Augusta, through the deregulation of the state banking industry during the mid-1970s. The political reforms associated with deregulation helped free up capital and, as one observer noted, "... the resulting competition has been good for the banks, good for the public, and good for job growth and for economic development (Masterton, 1986, as cited in Knopp and Kujawa, 1993). Thus, the willingness of Portland's new affluent class to invest in the city was reciprocated by a public sector stimulus from all level of government, with local politicians going to great lengths to help rebuild the city.

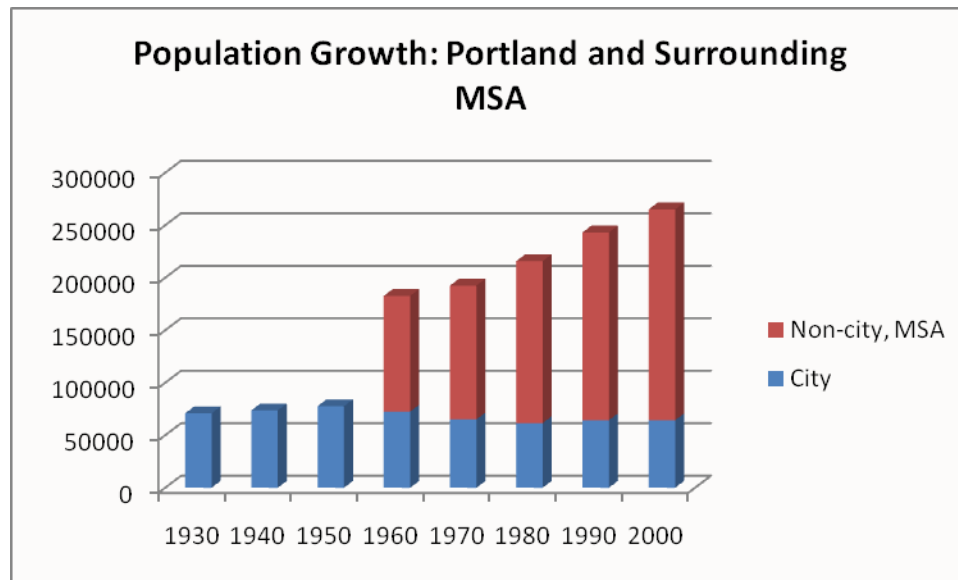
With a flood of new real estate investment continuing through the 1990s, Portland became increasingly attractive to middle-aged progressives and a new class of young urban professionals, commonly referred to as "yuppies." However, with the city's latest economic resurgence well under way, the appeal of moving to Portland was no longer centered on a low cost of living. Instead, outsiders were attracted to the chic urban culture that had grown to accompany the newly redeveloped Old Port and historic downtown. Buildings that had sat vacant for years were renovated to house art galleries, restaurants, and bars. This development is described by Heidkamp and Lucas (2006), who observe that "as a transformed space, a space created from the dilapidated remains of an industrial waterfront, Portland's revitalized waterfront

is an example of... a ‘space of consumption,’ a space that caters to the tastes of a new middle class” (p. 122). This combination of an upscale and walkable urban environment, low crime rates, a skilled workforce, along with ample outdoor recreational opportunities helped transform Portland from a declining seaport, to a city branded for its exceptional quality of life. Among many lifestyle awards, Portland has been recognized by Kiplinger’s Personal Finance magazine as a “Best City for Mid-level Professionals,” as well as being honored as the “Seventh Best Art City and Top-40 Best places for Business and Careers” by Forbes magazine (Robinson, 2007, p. 107).

Portland’s transformation into a regionally, if not nationally-marketable quality of life haven through this cycle of reinvestment is identified by Knopp and Kujawa (1993) as its “commodification as a place.” (p. 122). A central component of this newly-formed identity was the preservation of historical assets and other aspects of the city’s urban character amid the pressures of growth. As new construction threatened to overrun the waterfront, a civic group named “Keep the Port in Portland” initiated a campaign to preserve the city’s working waterfront for marine-related industries (Conforti, 2005, p. 318 and Knopp and Kujawa, 1993, p. 132). Additionally, Elizabeth Noyce, a wealthy benefactor of the state of Maine, contributed through “economic philanthropy,” often purchasing downtown real estate and renting it out at below-market rates (Robinson, 2007, p. 106 and Thomas, 1996). These and many other efforts ensured, to the greatest extent possible, that the city would not lose its compact urban scale and newly-restored built environment to irresponsible development and gentrification.

On the following page, **Figure 7-1** illustrates the population of the Portland Metropolitan Statistical Area (MSA) since 1960, in contrast with the the city itself. While Portland’s population appears to have remained stagnant, the rest of the metropolitan area has experienced

steady growth. While much of this growth during the late-1980s and early-1990s came in the form of suburban sprawl, the state of Maine responded with growth management legislation passed in 1991, aimed at promoting more responsible development. In Portland, these growth management policies have been particularly effective since the year 2000, with suburban sprawl having slowed in the fast-growing bedroom communities of York and Cumberland Counties (Turler, 2008, p. 1).



(Source: U.S. Census Bureau)

Figure 7-1: Population Growth in Portland and its Surrounding MSA

Emergence of a Post-Industrial Economy

During the mid-1980s and into the 1990s, the nation-wide movement towards a post-industrial economy was accelerated by globalization and an information technology revolution. While the United States economy expanded rapidly during this time, job growth was heavily concentrated in emerging service sectors, including computer science, healthcare, and personal finance. At the same time, many manufacturing jobs were outsourced to foreign countries,

primarily to capitalize on lower wages and virtually non-existent union protections. As a result, the growth of the 1980s and 1990s had a disparate effect on regional economies across the country. Midwestern cities, including Flint, Toledo, and Cleveland experienced economic hardship, while areas such as North Carolina's "Research Triangle" and Massachusetts's "128 Corridor" benefitted from an upsurge of high-paying service sector jobs. This economic shift is often characterized as a "sectoral transformation," in reference to the expansive restructuring of the global economy, precipitated by new forms of information technology.

Portland's growth as a quality of life destination among New England cities provided a very important comparative advantage in handling this economic transition. In a Fordist economy, the presence of physical capital, including natural resources and transportation linkages, was sufficient to maintain a competitive edge in production-based industries¹. However, with the rise international competition, the Fordist economy was rendered obsolete by an economic model known as Flexible Accumulation. The underlying premise of Flexible Accumulation is that, through the forces of globalization, physical capital, labor markets, and technology have all become increasingly flexible and spatially-mobile (Harvey, 1989, p. 147). As a result, there has been a very striking role reversal, relative to the importance of labor and capital in the early post-industrial economy. This transformation is explained by Ghosh (1995) as follows:

Labour has historically been subservient to capital (or land, in agricultural societies) as a source of power and wealth... But the knowledge revolution will change the nature of labor even more than it will of capital, while also decreasing the distinction between them.

¹ Fordism is an economic model, based on the mass production cycles first credited to Henry Ford, founder of the Ford Motor Company, during the early-20th century.

Portland's ability to attract educated, skilled workers during the late-1970s and 1980s enabled the region to capitalize on the rise of knowledge-based industries, such as healthcare, education, and finance. Such industries rely heavily on the expertise of their workers, rather than physical capital. In describing the ripening of this strategic advantage, Conforti (2005) writes "Portland is one of those postindustrial American places with a well-educated population, rich 'human capital,' and what has been called a 'creative economy'" (p. 323). In this context, the notion of a "creative economy" refers to economic activities that are based on the supply of ideas and innovations, as opposed to physical resources. With a labor force uniquely qualified to compete in these emerging creative sectors, Portland experienced massive growth in healthcare, legal, and financial firms. For example, between 1975 and 1990, the percentage employment in "Finance, Industry & Real Estate" nearly doubled within the Portland MSA (Knopp and Kujawa, 1993). After a short recession at the beginning of the decade, this job growth continued through the 1990s and into the 2000s. Describing the relationship between Portland's influx of skilled labor and the growth of its service sector economy, Knopp and Kujawa (1993) draw the following conclusion:

Between 1970 and 1990, Portland was transformed from a small, frequently distressed regional service center to a much larger and more upscale financial and service hub for the state of Maine. The area's population grew dramatically, almost entirely as a result of immigration. Immigrants were disproportionately drawn from large urban areas in the northeast... and from professional and managerial occupational classes (p. 117).

While Knopp and Kujawa accurately characterize the economic conditions that lead to Portland's success through the early-1990s, Portland's ability to sustain this growth trajectory has been largely tied to higher education. With the local presence of the University of Southern Maine, the University of Maine School of Law, and the New England College of Osteopathic Medicine, education serves as a major economic driver, both in providing jobs and renewing the

city's supply of human capital (Robinson, 2007). Education-related industries have even provided an economic multiplier effect, independent of the core service sectors that emerged during the 1980s. For example, Conforti (2005) notes that the local art communities has been a catalyst for economic development, through the promotion of local galleries and museums by the Maine College of Art, located in downtown Portland (p. 323). On the whole, these institutions of higher education serve as the anchors of Portland's creative economy, both in attracting and producing new professional talent.

Postmodern Transportation Linkages

Although the importance of Portland's physical connections to rail and sea were greatly diminished during the 20th century, transportation linkages would remain a significant ingredient in Portland's post-industrial success. Specifically, the city's airport and Canadian oil pipeline, each established during World War II, would become critical advantages in developing a competitive regional economy.

A controversial purchase during the height of The Great Depression, Portland Municipal Airport became an incomparable asset to the city's economic resurgence. Located only five miles from downtown, the site allows passengers to access the city's shops, restaurants, and hotels within minutes of landing. With the help of federal earmarks, the main runway was lengthened and a new terminal was built during the late-1960s, followed by a series of smaller improvements during 1970s (Robinson, 2007, p. 103 and Coffman Associates, 2006). In the process, Portland Municipal Airport was transformed into Portland International Jetport, and commercial airline traffic began to increase, primarily as a result of Portland's new economy. In general, service sector industries do not rely on transportation lines for the movement of physical capital or resources. They do, however, require that professionals move from place to place to

conduct business in an expeditious manner, often on short notice. More than 90 minutes from Boston by car, Portland would not have been able to accommodate these industries without a competitive regional air hub.

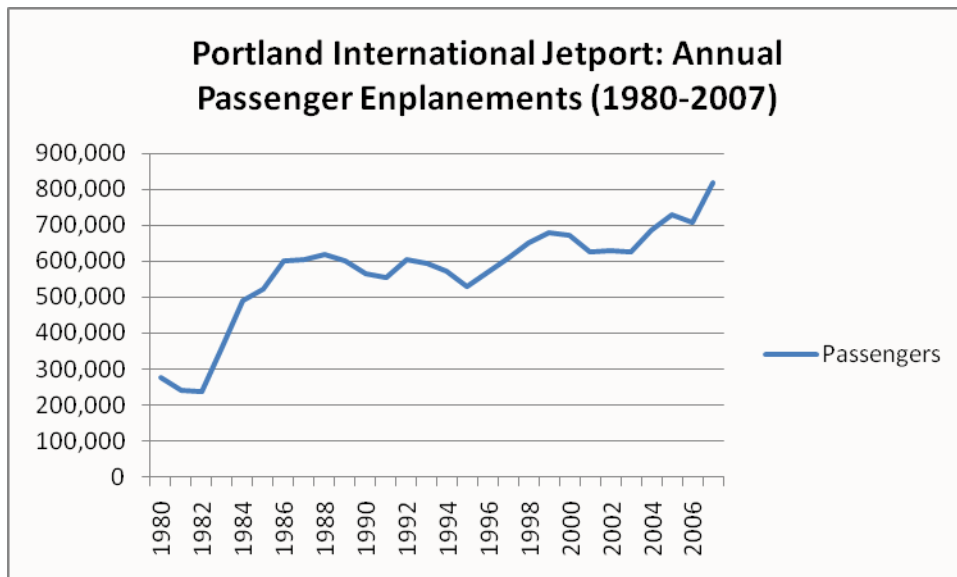
In support of this claim, Emerson and Tretheway (1994) indicate that there are five requisite conditions for a city to attract a sustainable employment base in the post-industrial economy. These requirements include a highly educated workforce, proximity to major research centers, a desirable quality of life, and reasonable tax rates (p. 5). During the 1980s, Portland made significant strides in three of these four areas, as described throughout this chapter. According to the authors, the fifth necessary condition is the presence of affordable commercial airline service, as explained in the passage below:

All of the desirable high tech, knowledge based industries are highly dependent on human capital. Human capital industries have the characteristic that connections between people are of critical importance. These industries require world class and inexpensive telecommunications. They also require frequent air travel for sales, for training, for expansion of knowledge via attendance at research symposia and conventions, for solving problems with customers scattered throughout the globe, etc. (Emerson and Tretheway, 1994, p. 6).

As Emerson and Tretheway indicate, cities that desire to compete in the post-industrial, service-based economy must provide a convenient link to commercial airline service. This fact is especially true of a geographically-remote location, such as Portland, Maine. Due in large part to the investments made by city leaders during the depression and subsequent post-war economic decline, Portland was able to provide a full complement of commercial flights to satisfy its growing economy through the 1980s. By 1990, demand had increased to the point that Portland ranked second in per capita plane boardings among all United States MSAs, behind only Las Vegas, Nevada. Green (2007) brings attention to this fact, noting that "...among the leading MSAs are Las Vegas, Orlando and Atlanta, which are also places that have experienced rapid

growth. The quirk is Portland, Maine, a place that has had relatively little population growth and yet has an unusually large airport for a city of its size” (p. 99). This is a very telling acknowledgement of the reciprocity between Portland’s post-industrial economy and its renovated airport.

During the early-1990s, commercial airline traffic stalled due to the local recession, only to rebound by the end of the decade, with the airport experiencing record passenger volumes in 1998 and again in 1999. With demand continuing to grow, the city successfully attracted another federal earmark in 2004 for reconstructing a major runway to accommodate larger aircrafts (DOT, 2004). This enabled the city to expand its passenger service, leading to even more growth. In 2007, a year when most of New England’s airports saw a decline in commercial air traffic, Portland International Jetport experienced a 17-percent increase in passenger boardings (Hughes, 2007). **Figure 7-2** (below) illustrates the increase in passengers through Portland International Jetport between 1980 and 2007:



(Source: Coffman Associates, 2006)

Figure 7-2: Annual Passenger Enplanement through Portland International Jetport (PMW)

In addition to supporting the city's post-industrial economy, the growth of Portland International Jetport provided a direct economic stimulus, by supplying a large number of high-paying jobs. Furthermore, complementary economic activities, such as hotels, rental car agencies, and businesses within the terminal have also greatly contributed to the city's tax base. Therefore, along with helping attract service sector industries, the airport generates an additional economic multiplier. Describing the positive externalities associated with a commercial air hub in the post-industrial economy, Emerson and Tretheway (1994) conclude:

There is great competition to attract these industries, and to be successful we must offer the ingredients which nurture these kinds of jobs... [O]ne of the key characteristics of successful locations in attracting these desirable human capital intensive industries is accessible and affordable air transportation. Air transport is a catalyst for development of the post-industrial economy, as well as an attractive industry in its own right (p. 6).

Portland's second major post-industrial transportation linkage has been the Portland-Montreal Oil pipeline, completed in 1941. Although domestic resource extraction and shipping have served a reduced role in the post-Fordist economy, petroleum remains an indispensable economic asset. In Portland, petroleum is imported through the city's port (en route to Canada) by oil tankers from up and down the East Coast, which stimulates the local shipping industry and promotes economic activity along the waterfront. After a series of improvements to increase line efficiency during the 1950s and early-1960s, the Portland-Montreal Oil pipeline reached the height of its capacity around 1970, aided by the high cost of foreign crude oil (Holmquist, 2007). Unfortunately, the growth of the pipeline was halted in the coming decades, as the increasing cost of domestic crude choked off demand. In reference to this period of decline, Holmquist (2007) elaborates "this was the first time the Portland-Montreal faced great challenges and competition... [H]igher energy prices, slower manufacturing, and major conservation efforts in Canada resulted in reduced demand... This falloff in business was felt in the Port of Portland as

well. In 1985 tanker traffic dropped to about three ships a month.” In the meantime, the once rural areas that the pipeline occupied became increasingly populated, with the value of the land approaching the value of the pipeline itself (Holmquist, 2007). By the late-1980s, the Portland-Montreal Oil Pipeline appeared to be on the brink of economic irrelevance.

Thankfully, the economic boom of the 1990s created an increase in petroleum demand and helped reinvigorate the pipeline. The increase in crude volume enabled the Portland Pipeline Corporation to reinvest in its infrastructure, making its facilities safer and more efficient. As a result of improvements made in 2002, the company was awarded the U.S. Coast Guard William M. Benkert Award for excellence in marine environmental protection (Holmquist, 2007).

Presently, Portland is the largest oil port on the United States eastern seaboard, primarily because of the economic activity generated through the Portland-Montreal Oil Pipeline. Since the pipeline first opened, nearly one billion gallons of crude oil have passed through the port (Robinson, 2007, p. 94). With the recent volatility of the global energy market, the economic utility of this transportation linkage stands to increase in the coming years. Regarding the future of Portland’s oil shipping industry, Gauvin (2008) explains “In 2010, the direction of the flow of oil will be reversed, filling the pipeline with Alberta tar sands crude destined for Portland. Canada is producing more oil now, using its own oil domestically and looking for export markets. And the U.S. is a hungry market.” Barring a swift and radical shift in the demand for petroleum, Portland will continue to serve as a strategic location for crude oil shipments for decades to come.

Evaluating Portland’s Revival

After an extended economic recession, the city of Portland was again rescued in part by economic activity directly related to its transportation linkages. In the post-industrial economy,

Portland International Jetport and the Portland-Montreal Oil Pipeline provide invaluable economic advantages that facilitate both human capital, as well as physical capital. Of specific importance is the fact that Portland International Jetport appears insulated from external competition, as there are no imminent threats, either from alternative modes of transportation or competing airline hubs. Based on increased service volumes in the most recent decade, it is apparent that these linkages have served as the foundation for Portland's post-industrial revival and continuing prosperity.

The overall impact of this resurgence has been a renewed importance for the city within the regional economy, alongside a marked improvement in local quality of life indicators. These trends were captured in a 2007 report by the Portland Community Chamber of Commerce, which found that despite containing roughly one-fifth of the state's population, greater Portland accounts for nearly two-fifths of the state's gross production, personal income, and number of jobs. While supporting this share of regional economic clout, Portland continues to offer "a high concentration of recreational and cultural amenities, a low crime rate and higher incomes, less poverty, and a greater proportion of residents with bachelor degrees than the average of the comparison regions and cities" (Murphy, 2007). On the brink of extinction during the early-1970s, Portland has successfully reinvented itself with a dynamic creative economy, thanks to an ambitious and progressive civic agenda that has allowed the city to maintain its superb quality of life and vibrant urban culture.

CHAPTER 8 - The Future

Portland Today

The preceding seven chapters have taken an economic perspective in answering the following questions: where has the city of Portland been, and how did arrive there? In doing so, this research endeavor has demonstrated that, beginning with its early-19th century maritime economy and continuing through the present, Portland’s economic prosperity has been inextricably tied to its transportation linkages. As follows, we can conclude that the city’s transportation network has served as a major catalyst for economic growth. A review of this historical progression is outlined in **Table 8-1** below:

Portland, Maine & Northern New England: Regional Economic Progression			
Period	Economic Model	Dominant Industries	Dominant Transportation Linkage
Pre-1860	Mercantile Capitalism	Fishing, Ship Building, Timber	Wood Ships, Rail
1860-1880	Early-Industrial	Metalworking, Ship Building, Timber	Steam Ships, Wood Ships, Rail
1880-1945	Early Industrial/Fordist	Metalworking, Defense-related Industry, Timber, Paper Milling	Steam Ships, Rail, Automobile
1945-1975	Post-Fordist (Disinvestment Cycle)	Timber, Paper Milling, Oil-related Shipping	Automobile (Decline of Rail)
1975-Present	Post-Industrial	Education, Finance, Healthcare, Arts	Automobile, Airplane

(Source: Adapted from Heidkamp and Lucas, 2006)

Table 8-1: Historical Progression of Portland’s Regional Economy

Having provided a historical narrative of Portland’s economic history through its 21st century, post-industrial incarnation, the only remaining question is: what lies ahead? Up to this

point, the city's evolution has proven that, as a place very much on the fringe of the North American economy—both geographically and metaphorically—Portland has very little margin for error. A small, remote location in northern New England, greater Portland has limited growth potential and must therefore rely upon strategic advantages to maintain its economic momentum. Currently, the city enjoys a disproportionately large share of economic clout by leveraging its transportation linkages to support a creative post-industrial economy. However, as Portland's post-World War II decline illustrated, city leaders must remain adaptive and forward-thinking, or risk a long downward spiral. This will entail cultivating whatever natural assets the city can exploit to create a new economic niche. In plain terms, this mean the city must go to great lengths to plan ahead.

Macro-economic Indicators

In response to this need for a clear long-term economic strategy, city leaders have held many conferences and published an array of plans aimed at pre-empting the next major economic shift. In 2006, the city held “Portland's Creative Economy Summit,” which informally applied a “SWOT Analysis” to identify the strengths, weaknesses, opportunities, and threats to local businesses. Citing a previous inquiry into the same issue, the summit concluded that Portland lacks leadership in directing its creative economy and, additionally, that local wages are suppressed, as workers are isolated from larger labor markets (p. 97). With regards to these and other problems, the report also contained the following quote from a summit participant:

The perception is that everyone is doing pretty well. The reality is that we are just getting by and living in Portland and surrounding areas is nearly unsustainable. As a result, creative individuals are spending a lot less time than they should/could be actually doing creative work. The perception is that Portland will always have a creative community. The reality is that without a sustainable environment, creatives will migrate to places that are (p. 108)

This statement offers insight into Portland's economy prior to the 2007-2008 economic collapse. While superficial measures of growth indicated the city was prospering, the need for a long-range strategy was readily apparent. In the *2005-2010 Consolidated Housing and Community Development Plan*, the city's Planning & Urban Development Department identified some very alarming trends that emerged at the beginning of the decade. Notably, while the Maine economy was expanding—and at the time of publication in February, 2005, projected to expand through 2007—more telling economic indicators, such as a decline in new businesses start-ups and a stagnant per capita household income hinted that the state's economy was in trouble.

Often overlooked in the regional transformation to a post-industrial economy, is the fact that many service sector jobs do not pay a wage commensurate with the manufacturing jobs they replace. While Maine's manufacturing base has been eroding for nearly fifty years, this trend accelerated during the early-2000s, when Maine experienced the highest rate of manufacturing job loss in all of the United States (2005-2010 Plan, p. 67). Many of these jobs paid high wages and provided additional benefits to workers without a college education. Although the state of Maine, and particularly the greater Portland area, experienced significant job growth in health services and finance, these industries draw from a different labor pool than manufacturing. Practically speaking, Maine's manufacturing jobs have been replaced by retail, food services, and other lower-paying jobs that do not provide benefits. As a result, the real income of Maine households was actually lower between 2001 and 2003, than it was during the previous three years (2005-2010 Plan, p. 68).

This wage disparity has been particularly pronounced in Portland which despite attracting more skilled workers also has a higher rate of homelessness and poverty than the rest of the state.

Combined with the fact that local property values remain significantly higher than in other cities across the region, this earnings gap disproportionately impacts Portland's non-college educated workers. To illustrate this point, consider that despite earning less than the median income of all Maine workers, Portland residents face a 13-percent higher cost of living than the statewide average (2005-2010 Plan, p. 68). Overall, despite the reinvestment in the Old Port and downtown business district, Portland's urban revival has been highly localized. Many residential neighborhoods remain in disrepair, with a large percentage of the city's skilled workforce commuting into the city from suburban Cumberland County.

Identifying future goals, the city's economic development strategy emphasizes bolstering technology sectors to attract more high paying jobs. The direction of this policy is expressed in the passage below:

The Economic Development Division [EDD] continues its business attraction initiative with a focus on the technology industry to position Portland, the region and Maine as the place for technology businesses to grow and prosper. This industry can become a major driving force in our local, regional and state economy... As Portland continues to be an attractive location for the information technology industry, the [EDD] is also developing a strategy for expanding Portland's small but existing biotech/biomedical cluster... This biotechnology initiative would focus on helping local companies expand while attracting new companies to the area... (2005-2010 Plan, p. 69).

As of 2005, local technology sectors appeared to provide the best chance for sustainable job growth, as such firms are not heavily-dependant on geographic location and require high levels of human capital. Unfortunately, the recent economic crisis has devastated the national economy, with the corresponding savings and loan crisis crippling those sectors that rely on free-flowing credit. These events have exposed the vulnerability of many cities and states which, despite boasting "creative economies," do not actually produce any tangible goods. While perhaps an oversimplification of the underlying causes of the recent crisis, one might argue that

the root of our economic problems stem from the fact that, within the last two decades, the notion of economic productivity has been perverted into an abstract concept.

During the 1990s and early-2000s, the United States Gross Domestic Product (GDP) consistently grew, but so too did the income gap between the wealthy and poor (Agnew, 2005). In other words, the real income of American families and the true productivity of the American worker did not increase to the extent the national GDP would indicate. One reason for this discrepancy is that a high percentage of value produced in the United States economy over the last fifteen years has been concentrated in the perceived value of the financial and real estate markets. When the markets were producing consistent returns (either real or imagined), investors earned unprecedented levels of wealth. However, this level of economic prosperity generated very little capital investment. In support of this argument, Agnew (2005) writes:

A plausible account of the phenomena of income stagnation and fading promise would stress, first, the cutting of the Fordist knot that tied together production and consumption... Under such conditions, expansionism beyond national borders no longer guarantees a return for most of those people left at home. Only those who earn their livings from investments are beneficiaries. At the same time, this is also discouraging businesses from investing in capital, especially in production-enhancing equipment. This in turn accounts for the decline in capital/output ratios in the United States since the early 1980s through the mid-1990s (p. 192).

This passage summarizes one of the central flaws of the United States post-industrial economy, beginning with the onset of globalization. At this time, labor markets were severed from physical capital, resulting in an economic structure that generates value based on the appreciation of assets. When the valuation of these assets is no longer tied to physical capital, such investments essentially become gambles on the liquidity of future markets—or the ability to convert assets into other forms without losing value. Unfortunately, the near simultaneous demise of lending institutions, the stock market, as well as the national housing market destroyed

the value of many assets. Until this point, American consumption patterns remained at dangerously high levels. Simply put, the United States economy was becoming less productive in terms of value-added processes, yet consumers spent more money than ever before. With regards to this trend, Agnew (2005) surmises:

Americans still spend more and more even as they produce relatively less. Consumption has lost none of its sparkle. Indeed, it has been American consumption (and Chinese production) that has kept the world economy afloat and growing since the mid-1990s. This is possible because massive credit inflows from abroad. Therefore, there is a fundamental imbalance in the world economy created by the gap between American consumption and American production.

Looking Ahead

Had this research effort began just one or two years earlier, the conclusion on Portland's economic future would, no doubt, have painted a very different portrait. The reality of the situation, however, is that as of March, 2009, the United States economy—and by extension, the local economy of Portland, Maine—is mired in a deep recession. This recession was not thrust upon the country overnight, but is a product of the combustible debt accumulation patterns that have characterized the United States economy of late. What is most important to understand, relative to the future of the city of Portland, is that this recession is likely to be measured in years, not months. In support of this prediction, consider that since World War II, the volatility of key economic indicators in the United States, including unemployment and real GDP, has consistently decreased. This “inertial momentum” has kept the American economy relatively stable, in comparison to the decades prior to the war (Silver, 2009). A consequence of this steadiness, however, is that the United States economy takes considerably longer to change direction than it once did. Following each recession after 1981, the United States has taken increasingly longer to return to peak employment (Silver, 2009). Combined with the precipitous

decline in the stock market in late-2008 and early-2009, these trends foreshadow a very long recession. In light of these facts, Portland cannot assume that following the current recession, it will automatically recapture the momentum created during its initial post-industrial boom.

The Spatial Significance of Portland's Post-Industrial Economy

One of the most prominent cultural, economic, and geographic theories produced from the late-20th century post-industrial transformation, was Manuel Castells' concept of "Space of Flows." Castells' theory originates from the idea that the 20th century technological revolution has fundamentally changed the spatial interaction between capital, information, and members of society. To this extent, "Space of Flows" can be defined as the "material organization of time-sharing social practices that work through flows" (Francke and Ham, 2006, p. 8). Among the factors that contribute to this phenomenon are advanced telecommunications and globalization, both of which enable commerce to be conducted absent spatial constraints. A corollary of this theory is that smaller regional economies, formed primarily on the basis of proximity, will be undermined by an emerging network of global cities, including New York, London, and Tokyo. These global cities will effectively transform the flow of information and capital within the world economy. As Francke and Ham (2006) elaborate "the global city is not a place, but a process. A process which centers of productions and consumptions of advanced services, and their ancillary local societies, are connected in a global network, while simultaneously downplaying the linkages with their hinterlands, on the basis of information flows" (p. 4).

As it pertains to Portland's post-industrial economy, the "Space of Flows" theory forewarns that places that have based their economic livelihood on geographic connections established during the Fordist era will face the equivalent of a cultural revolution. From the beginning of the Second Industrial Revolution through World War I, the city of Portland

amassed a surplus of physical capital and comparative geographic advantages that made it a regional gateway for commerce. Despite the city's success in re-inventing itself as a service sector economy, there is virtually nothing that physically ties this level of economic activity to Portland. A consequence of Castell's conception of the post-industrial global economy is the delineation between "places" and "non-places." Places are defined by the presence of corporate headquarters and other high-end services that solidify a city's future status as a node, or place of importance, within the "Space of Flows" (Francke and Ham, 2006, p. 4). Conversely, Francke and Ham (2006) provide the following explanation of the inverse effect on cities that do not have a legitimate pull within the post-industrial global economy:

Within the Network Society new kinds of places come to exist. These are places that don't have any specific characteristics and could therefore be located almost anywhere. The places all look the same no matter where you are in the world. These places are called "non-places." The [emergence] of non-places is caused by globalisation and the rise of information technology (p. 9).

As presently constituted, the economy of Portland, Maine, leaves the city highly vulnerable to becoming a "non-place." The two most important transportation linkages of the city's post-industrial re-birth—Portland International Jetport and the Portland-Montreal Oil Pipeline—are certainly not sufficient incentives to retain economic activity. An airport, in and of itself, is a complementary service. In other words, it supports an existing economic structure, but the presence of an airport will not attract commerce on its own. Likewise, the existence of the Portland-Montreal Pipeline does not ensure that Portland Harbor will remain an important point of access for oil shipping. The physical pipeline, without connections to any additional transportation linkages, connects the province of Quebec (with a population under eight million people), to the state of Maine (the 40th most populous state in the country). These physical linkages, while important to Portland's continued prosperity, do not provide Portland with any

demonstrable advantage over any other place—or non-place—in retaining post-modern industries.

Among the advanced services identified in the “Space of Flows” theory are finance, consulting, design, and scientific innovation (Francke and Ham, 2006, p. 4). The unifying thread between all of these industries is that, increasingly, each can be performed anywhere in the world. With the rise of the internet and telecommuting, the need for a central location for banking and finance has been greatly reduced. Similarly, research, design, and consulting services can be performed in remote places, due to the negligible friction of distance associated with information dissemination.

Clearly, telecommunications will not render the face-to-face business meeting totally obsolete, as there is a certain comfort level associated with genuine social interaction. However, as the “Space of Flows” theory indicates, the places that will retain this level of activity will be global cities. Unfortunately for Portland, its northern New England hinterland is small, geographically-remote, and sparsely populated. As the number of services available through telecommunications increases, the need for a regional financial center to service only a few million people will gradually decrease. Although demand for retail and other industries that supply physical goods and services will always remain, such economic activity does not make a city an actual *place*—at least as defined within the “Space of Flows” theory.

Concluding Thoughts

The intent of this research inquiry was not to criticize Portland’s long-run economic vision. Rather, the bulk of this report is intended to reveal how truly remarkable the city’s economic evolution has been, considering the many pitfalls that residents of Portland have endured along the way. It is only through the foresight and ingenuity of city leaders, both within

the public and private sector, that the city maintains its disproportionately large share of economic influence today. Still, given the overwhelming evidence the United States stands at the beginning of a long economic downturn—one that stands to fundamentally re-define the way Americans live—it is difficult to be optimistic for the future of small, highly-localized regional economic hub. In the future, competition among cities for high paying industries will be fierce. And if the hypotheses of Agnew and Castell come to fruition, the new post-industrial economy that grows out of the current global recession will have a severe marginalizing effect on small, specialized economies. Under such conditions, Portland lacks both the current population and a capacity for future growth to sustain a prosperous, long-term creative economy.

Instead of focusing on what the city of Portland is missing, however, I would prefer to emphasize the assets the city can leverage to create new comparative advantages. Namely, the natural and geographic resources that made Portland an attractive place to settle centuries ago. First and foremost, Portland Harbor remains one of safest, most accessible ports on the eastern seaboard. In a global economy that has passed peak oil production, it stands to reason that in the coming century, energy demand will continue to increase, while the supply of oil decreases. Eventually, this will lead to extreme volatility in the price of petroleum-based fuels, at which point shipping will become an increasingly important economic tool. During a recent spike in energy prices in the summer of 2008, wind-powered ships saw a brief resurgence as an inexpensive, eco-friendly alternative (Schwartz, 2008). While it is unlikely that the commercial sailboat will ever experience a true renaissance, the economic opportunities provided through the city's port remain Portland's most important strategic resource. Continued investment into the waterfront could pay dividends in attracting shipping-related industries to complement service sector industries.

Similarly, Maine's forests—a temporarily forgotten natural resource—also offer untapped potential in the form of biorefineries, which are capable of converting wood into ethanol, home heating oil, and other biofuels (Turler, 2009, p. 1). With nearly 90-percent of the state covered in trees, Maine has a nearly inexhaustible supply of timber. By retrofitting the states eleven remaining paper and pulp mills for biofuel production, the state could make a long-term commitment to creating a new wave of “Green Collar” jobs. As Maine's most important economic center, Portland would be in position to attract the scientists, engineers, and financiers required to make this conversion a reality. At the same time, the production of biofuels could stimulate transportation linkages, as locally-produced energy is shipped across the United States.

Ultimately, if Portland is to succeed in the post-modern economy, it must rely on a “back to basics” approach. As a city of 66,000 residents, Portland's identity as a quality of life haven and chic artistic community can only carry the city so far. People seeking a metropolitan urban culture will ultimately be drawn to larger metropolitan areas, where salaries are higher and opportunities are greater. What distinguishes Portland from other small cities across the northeastern United States is the physical capital provided by its coastal geography. These resources, including the city's natural port and densely forested hinterland, are what will prevent Portland from fading into the oblivion of a “non-place” in the coming decades. The investments of time and money that will be required to re-invent the local economy will be great, but as previously noted, at every point of crisis in Portland's history, a new re-imagination of the city has been built atop the rubble of the previous one (Robinson, 2007, p. 4).

The current economic crisis presents a serious challenge to Portland's future viability as a regional economic hub. However, this crisis also presents the opportunity for residents to re-invent their city one last time. In one of the most progressive political climates in the United

States, it is not difficult to imagine Portland establishing a new economic identity, founded on green jobs and the green energy that is already abundant across the Maine hinterland. If history tends to repeat itself, the resilience demonstrated by the city over the last two centuries suggests that the “other” Portland will emerge stronger than ever before.

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