Cities Large and Small Together: The Subregional Model of Economic Change in the Nineteenth Century

Matthew D. Bloom (Concordia University Texas)

Abstract: *This article presents a new paradigm of regional economic change, named the subregional model, which includes a hub, local economic centers, small villages and farms, and links of various qualities. The subregional model also contains an environmental character explaining economic change. Economic change in nineteenth-century United States materialized through settlement, transportation and commercial linkages, urban and rural development, and land use emphasizing connections whose number and quality greatly determined the pace and magnitude of economic change. Integration and strength of connections provided generative economic development with cities on a subregional level, extracting natural resources from hinterlands to stimulate urban expansion through new businesses and growing manufacturing establishments. Northwest Ohio provides an example of the growing network of cities, towns, and farms whose connections exhibited symbiotic growth. Additional case studies of Cedar Rapids, Iowa; Birmingham, Alabama; and Denver, Colorado, further elucidate important components of development and refine the interpretive power of the subregional model. These key factors of economic change explained through the model include population size, urban-rural interactions and symbiosis, geography and natural resources, transportation infrastructure, and political connections. Because most residents of the United States lived within systems of medium-sized economic centers surrounded by hinterlands, the study and interpretive analyses of places such as Toledo are fundamental to the understanding of the history of the United States.*

Introduction

Throughout the history of the United States economic changes began in numerous ways proceeding at many different paces. The rates of change were based on factors such as proximity to and utilization of transportation routes, land quality and use patterns, and the dominant beliefs of policymakers at specific times. This article explains and analyzes a new paradigm of regional economic change named the subregional model. This model involves a subregional hub, local economic centers,

smaller communities, and hinterlands supplying resources. Connections among urban and rural areas — whether commercial, transportation, political, or social — constituted the key components of economic development within the United States during the nineteenth century. Therefore, the subregional model can provide a theoretical framework to scholars to structure historical narratives of regions and local areas and how these places fit into a national narrative of development.

A model to describe economic change within the United States during the nineteenth century needs to combine the cause and effect of resource usage and urban-rural interactions within market developments during that time. This article will make the case for the validity of focusing on relatively small urban areas rather than major cities to describe economic change throughout the nineteenth century while also explaining the connections of the model to earlier historical and geographical accounts. Using Toledo, Ohio, as the primary case study, a graphical depiction of the subregional model will be developed. Finally, using other brief case studies, the article concludes with a discussion of factors of economic change and how these are evident in the model. Denver, Colorado, is included as an additional case study due to its comparable population to that of Toledo in 1900, while Cedar Rapids, Iowa, and Birmingham, Alabama, are chosen because of their surrounding agricultural and industrial areas, respectively. Toledo's growth included both farming and manufacturing. Key factors of economic change explained through the model include population size, urban-rural interactions and symbiosis, geography and natural resources, transportation infrastructure, and political connections.

HISTORICAL AND GEOGRAPHICAL PRECEDENTS

Because most residents of the United States lived within systems of medium-sized economic centers surrounded by hinterlands, the study and interpretive analyses of places such as Toledo and its environs is fundamental to understanding the history of the United States. A 'medium-sized economic center' is one that is not a primary city for the United States system of cities but is large enough to have smaller communities throughout its hinterland that have noticeable significance for lands surrounding them. Such medium-sized economic centers have banking, commercial, manufacturing, political, and social institutions and establishments that nearby towns do not have, yet bigger cities throughout the United States have a larger number of such institutions as well as more specialized business and political functions placing them higher in a hierarchy of cities within the national network.

Urban and rural residents created connections with each other initially spurring some economic changes and providing networks for later developments. All people in the United States had linkages, however tenuous, to the large cities along the Atlantic seaboard. However, as settlers moved across the continent, they established subregional systems of cities whose dominant urban centers were significantly smaller than cities such as New York, Boston, Philadelphia, and Charleston. Agricultural production and market arrangements consisting of a bigger town, smaller communities, and farms supported the economic expansion of domestic United States markets and the transformation of the North American landscape as Euro-Americans settled on formerly Native American lands.

The establishment of a fully integrated national market was slow throughout the early nineteenth century, but the creation of regional economies supported by intraregional

trade formed market opportunities for people living in individual subregional systems. As historians Joyce Appleby and James Henretta argue in individual journal articles, farmers from the early nineteenth century produced and sold at least a small surplus to have money to purchase products such as nails or metal-ware they did not make on their farms. These markets provided the impetus for commercial development and business interactions. Historian Diane Lindstrom's *Economic Development in the Philadelphia Region* is the classic study of how intraregional markets shaped a region. Lindstrom asserted that early in the specialization process, hinterland production pushed the development of the city of Philadelphia. Later, the city pulled the hinterland as major urban economic activities shifted from commerce to manufacturing, thereby providing goods for sale in surrounding counties.[1]

Perhaps the most illustrative analysis of the symbiotic nature of urban-rural interactions is historian William Cronon's *Nature's Metropolis*. In his book, Cronon analyzed the idea of 'boosterism' as an explanation of the settlement and development of the United States frontier in the nineteenth century. Providing an alternate paradigm to Frederick Jackson Turner's traditional 'frontier thesis' regarding settlement, Cronon reversed Turner's model to describe activities where 'boosters' attempted to bring 'civilization' in the form of cities quickly to unsettled areas. Often entrepreneurs and land speculators would purchase land cheaply hoping to sell it to settlers or other businessmen thereby creating nascent towns. Sometimes this worked, but in most instances these towns only existed on paper.

[1] Joyce Appleby, "Commercial Farming and the 'Agrarian Myth' in the Early Republic," *Journal of American History* 68, no. 4 (March 1982), 833-849; James A. Henretta, "The 'Market' in the Early Republic," *Journal of the Early Republic* 18, no. 2 (Summer 1998), 289-304; Diane Lindstrom, *Economic Development in the Philadelphia Region, 1815-1840* (New York: Columbia University Press, 1978).

Growing towns provided markets, transportation links, and political centers for the surrounding rural countryside; indeed, farmers depended on nearby communities and marketplaces — and of course weather and good land — to thrive. Soon, the built environment would expand onto former farmland transforming the landscape and creating what Cronon, and other scholars, called 'second nature'.[2]

Transforming natural landscapes to better reflect their socially-constructed notions of economic well-being, diverse groups of people created transportation infrastructure, constructed the built environment, and eliminated adverse natural conditions. Doing so was one part of progress for nineteenth-century Americans. Historian Roderick Nash in *Wilderness and the American Mind* contended that settlers considered 'uncontrolled nature' as wilderness and desired to 'conquer' nature. In *Nature Incorporated*, environmental historian Theodore Steinberg posited that '[h]uman history is defined by the transformation and control of nature'.[3] Steinberg's analysis of water usage and early textile mills in New England showed how company owners and civil engineers used science and technology to utilize all available amounts of water to power factories. Geographer James Lemon maintained that the liberal dreams of urban boosters and policymakers led to vast amounts of material progress as people used available natural resources. Moreover, legislators debating issues involving 'internal improvements' showed that they believed the conditions of the land needed to be made better. Results of early initiatives of expanding Euro-

[2] William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: Norton, 1991), 46-54, 56-57, 62, 266-267; Frederick Jackson Turner, "The Significance of the Frontier in American History," *The Frontier in American History*, http://xroads.virginia.edu/~HYPER/TURNER/chapter1.html (accessed September 13, 2011); John D. Haeger, "The Abandoned Townsite on the Midwestern Frontier: A Case Study of Rockwell, Illinois," *Journal of the Early Republic* 3, no. 2 (Summer 1983), 165-183.

[3] Theodore Steinberg, *Nature Incorporated: Industrialization and the Waters of New England* (New York: Cambridge University Press, 1991), 12.

American land uses and customs prompted people to further modify nature through new transportation infrastructure and an expansion of the built environment.[4]

The subregional model also includes elements of geographic ideas based on central place theory. The hierarchy of central place cities located at the centers of traditional hub-and-spoke models is based upon specialized activities — commerce, manufacturing, blacksmithing, and banking for example — with higher-order places having all of the pursuits while the lowest-order cities having only some. Thus, low capital industries such as blacksmithing existed in all small towns, and high capital industries such as farm machine factories only existed in bigger cities. Higher order goods — specialized manufactures or insurance policies — had a larger range of supply creating a larger hinterland for the urban center. Beyond economics, government functions — legislative and administrative meetings, court trials, and tax collection — frequently enhanced central place characteristics for state capitals and county seats. For example, historian Patrick Allan Popsiek explained how Springfield, Illinois, despite not being on a river or directly adjacent to well-traveled roads, grew in significance because it was the seat of government for Sangamon County and then the Illinois state capital.[5]

[4] Roderick Frazier Nash, *Wilderness and the American Mind*, 4th ed. (New Haven: Yale University Press Note Bene, 2001), xi-xiii, 12, 27, 40-41; Steinberg, *Nature Incorporated*, 12-13, 50-76, 79-80, 88-95; James Lemon, 'Liberal Dreams and Nature's Limits: Great Cities of North America Since 1600', *Annals of the Association of American Geographers*, 86; 4 (December 1996): 747-748, 746.
[5] J. A. F. Nicholls, "Transportation Development and Löschian Market Areas: An Historical Perspective," *Land Economics* 46, no. 1 (February 1970), 22-31; Brian J. L. Berry and William L. Garrison, "The Functional Bases of the Central Place Hierarchy," *Economic Geography* 34, no. 2 (April 1958), 145-154; Michael Pacione, *Urban Geography: A Global Perspective*, 2nd ed. (New York: Routledge, 2005), 125-132; Patrick Allan Pospisek, "'The Rivalship of Insignificant Villages': Springfield, Illinois and Town Development in the Old Northwest, 1817-1840," *Historical Geography* 38 (2010), 107-129.

While the highest-order city is in the middle of central place theory, a gateway city, in an alternate geographic development paradigm, is to the side of the region considered, thus having a fan-shaped hinterland. The gateway city develops in positions possessing the potential to control flows of goods and people and, thus, is frequently characterized by long distance trade relations. A gateway city's function often remains based on geographic conditions and time needed for new economic interactions to form among people. A heavily productive region can have cities develop close together near the gateway due to the ability of the area to economically support the urban growth while a less productive region forces large cities to be farther apart because of the lack of market support of the weak hinterland. In regards to transportation, geographer A. F. Burghardt maintained that improvements to infrastructure did not alter the status of a gateway city: rather, new modes of transportation such as railroads would restructure the system towards a central place system. Alternatively, if transportation infrastructure is not improved or if a town's hinterland loses productivity, the gateway condition will remain static.[6]

Resulting from economic interactions stimulated by transportation infrastructure, market areas of small villages nest within a larger tributary area of a bigger town. As such, development within either smaller towns or larger cities will help the other, reflecting a dynamic growth model. According to a model elucidated by economic geographer David Ralph Meyer, dynamic growth entails control and exchange or movement of products with more products in the system leading to more business and economic interactions. Businessmen compete for trade at the location of consumers, and growth in market activities will result in more entrepreneurs at a

[6] A. F. Burghardt, "A Hypothesis about Gateway Cities," *Annals of the Association of American Geographers* 61, no. 2 (June 1971), 269-285.

location, creating a subregional metropolis. Key to Meyer's dynamic growth model is integration, described as the degree of incorporation of people and products into a system measuring the interaction found in the network. Interdependence stemming from integration revealing change in one urban area is reflected in others, and functional relationships among cities are keys to the dynamic growth model and integration. Thus, the use of transportation infrastructure, rather than its mere existence, shows integration and the strength of connections.[7]

DESCRIBING THE MODEL

The interpretive framework of the subregional model shares many characteristics with earlier explanations of economic changes, but it also differs in some respects. The subregional hub can function as a central place, but the hub may also function as a gateway city. However, local economic centers are strictly central places for adjacent hinterlands with transportation routes providing initial links among rural and urban areas. Although following central place theory in ordering cities, the subregional model contains an environmental character to explain economic change.

Regarding the environment, integration and strength of connections provided generative economic development with cities on a subregional level using natural resources from the hinterland to stimulate urban expansion through new businesses and growing manufacturing establishments. The size of a subregional hub's primary hinterland is fairly static with weaker connections farther out from the city. Early

[7] David Ralph Meyer, "A Dynamic Model of the Integration of Frontier Urban Places into the United States System of Cites," *Economic Geography* 56, no. 2 (April 1980), 120-140; Eugene Moehring, "The Comstock Urban Network," *The Pacific Historical Review* 66, no. 3 (August 1997), 337-362; D. Ulrich Cloher, "Integration and Communications Technology in an Emerging Urban System," *Economic Geography* 54, no. 1 (January 1978), 1-16.

economic and environmental changes greatly determine the size of a hinterland. For example, small communities surrounded by good agricultural land will utilize such productive farmlands to produce surpluses for sale in a market, thereby "pushing" the development of an urban area near an existing transportation route — road, canal, railroad, or natural body of water. Likewise, speculators could establish a nascent town along an existing shipping corridor allowing the growing urban area to "pull" the development of smaller towns within its hinterland — farming communities or mining towns for instance.

The key difference between the subregional model and other urban development interpretations is that the former does not represent a hub and spoke system but rather a network of farms, small villages, local economic centers, and a primary urban area. The centrality of the subregional hub is not necessarily geographic, but the city is the focal point of economic interactions supporting and influenced by the surrounding hinterlands. Thus, an historical analysis of the symbiotic nature of urban-rural interactions of an area is necessary to determine how well it conforms to being a subregional hub, a local economic center, or in the midst of a hinterland.

Graphically, I have represented the subregional model with circles signifying urban areas, small rectangles designating farms, and lines showing connections among urban and rural areas. (See Appendix: Figures 1, 2, and 3) Concentric circles signify urban growth over time beyond the original period of settlement whether through commercial, residential, or industrial means; scholars often call this process borderland suburbanization. Farms were linked to small and large towns through selling surplus crops and homemade items and through purchasing goods and

supplies that could not be made *in situ*. Lines represent connections among the developing cities with other subregional systems (with darker ones symbolizing stronger connections), thereby mapping regional and national networks. Reliable transportation routes provided stronger connections through both access to numerous towns and stimulating enhanced business connections.[8]

The subregional model has three main stages of development. First, settlers formed compact settlements and farms with weak connections just behind the frontier line. (See Figure 1) Often the small towns were situated on old Indian trading routes or near military outposts. Farmers developed links to nearby communities selling surplus crops and buying supplies they could not produce themselves thereby providing an impetus for urban expansion of local economic centers. Travel and transport along early roads helped facilitate market activities among farms and small towns. Over time, the gateway and central place functions of the nascent cities developed.

Second, after a period of economic change including urban, agricultural, and transportation route expansion, more towns developed and connections among them strengthened. (See Figure 2) With improved commercial connections among other subregions and distant markets, the function of a gateway city formed within one town that became the subregional hub. Local economic centers — with their own agricultural tributary area and connections to nearby smaller towns — grew

[8] For a description of how the transfer of information shaped connections among larger United States cities, see Alan Pred, *Urban Growth and the Circulation of Information: The United States System Of Cities, 1790-1840* (Cambridge, MA: Harvard University Press, 1973) and Alan Pred *Urban Growth and City-Systems Development in the United States, 1840-1860* (Cambridge, MA: Harvard University Press, 1980); For an analysis of borderland suburbanization, see Chapter 3 of Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000* (New York: Pantheon Books, 2003).

throughout the hinterland of the main urban area. Yet, at this stage, some connections among towns remained weak or did not exist. New transportation methods would break this seeming isolation, strengthening connections among towns and spurring new market interactions.

Third, a mature subregional system of cities included connections of various qualities among all towns (nodes) of the network with the hub functioning more like a central place than a gateway city, and the local economic centers having their own productive hinterlands with farms and villages. (See Figure 3) With land improvements, farms could have stronger connections to nearby communities, and the increase in manufacturing allowed some small towns near the subregional hub to develop, based upon industrial rather than agricultural links. The dynamic growth of the subregion throughout the various stages of the model depended upon the use of transportation routes stimulating increased market interactions and integration among people, and the improvement of land and use of natural resources.

TOLEDO AND THE SUBREGIONAL MODEL

Economic change in Toledo and throughout northwest Ohio during the nineteenth century closely follows the subregional model. Toledo, on the shore of Lake Erie at the mouth of the Maumee River, developed as a gateway to lands of the Old Northwest Territory and a subregional hub for areas in the Great Black Swamp and within the Maumee River Valley. Typical landscapes in northwest Ohio at the beginning of the nineteenth century included dense forests with swampy bottoms, sand ridges rising above the flatness, and open coarse-grass prairies dotted with woodlots. The prairies, according to a soldier travelling through the area during the

War of 1812, were expansive, flat plains broken by groves of oaks, hickories and hazel bushes, with a luxuriant growth of grasses and herbs and colorful flowers in summer. Later settlers, farmers, and businessmen utilized the soil, timber, and other natural resources to effect economic change, molding the natural landscape into something reflecting their socially constructed ideas of material progress.[9]

Before Toledo became incorporated in 1835, only a few small settlements and communities existed in northwest Ohio, mainly along the Maumee-Western Reserve Road and Maumee River. On the edges of the Black Swamp and on the major road, Perrysburg and Lower Sandusky (Fremont) were the dominant economic centers in northwest Ohio before 1835 when only roads and natural waterways served as transportation routes. (See Appendix: Map 1) Traveling on navigable waterways was the easiest and cheapest method of transporting goods from one location to the next. Not every community, however, was located near a navigable river. Therefore, workers constructed roads under the direction of federal or state governments to connect these communities.

The subregional model, as it relates to Toledo and its hinterlands, helps to elucidate the perceived role of government *vis à vis* the economy in the nineteenth century. Legislators debated who had the responsibility to finance and oversee the Maumee-Western Reserve Road venture.[10] Many politicians arguing for internal improvements in northwestern Ohio assumed such projects would provide extensive economic

[9] Henry Howe, *Historical Collections of Ohio in Two Volumes, An Encyclopedia of the State*, Vol. 1 (Cincinnati: C. J. Krehbiel and Company, 1888), 903-904; Royal Eastman Shanks, "The Original Vegetation of a Part of the Lake Plain of Northwestern Ohio: Wood and Henry Counties" (PhD diss. Ohio State University, 1938), 5-12.
[10] *American State Papers*, 10, *Miscellaneous* 2:491.

growth coupled with avenues for national defense against the British still controlling nearby Canadian lands.[11] The uneven economic development of these regions was not always the grand progressive changes envisioned by the governors, senators, and congressmen who developed the policies for this intended growth. Thus, contingency in business and population growth may be inferred from the model.

Transportation infrastructure remained vitally important for connecting cities, smaller towns, and farms around Toledo before the American Civil War. Based upon its location as a terminus of the Wabash and Erie Canal, Toledo evolved into the gateway city of northwest Ohio, southeast Michigan, and northern and central Indiana, solidifying its status as a subregional hub. Burgeoning cities in Toledo's hinterland pushed its continuing development through their market connections to it and with each other, yet state boundaries seem arbitrary in determining hinterlands except when laws unique to a state — such as drainage laws — impacted economic development. However, some of these connections among towns and farms remained weak with inadequate transportation routes; canals and roads proved insufficient alone to connect towns and bring people together. (See Figure 2) The innovation and construction of railroads, beginning in the 1840s, added to the transportation network supporting regional and local market interactions, while helping to develop the system of cities surrounding Toledo. The flexibility in locating railroads — they did not have to be near natural waterways — and the lower transportation costs for farmers and businessmen shipping crops and merchandise, allowed people to increase and modify their market interactions with one another.

[11] Extensive economic growth involved connections between people in distant markets. Intensive economic growth involved connections among people in local areas.

Through consolidation of rail lines, Toledo gained stronger connections with areas beyond its immediate hinterland. Once combined as one company in 1855, the Michigan Southern and the Northern Indiana railroad provided Toledo with rail access to the wheat growing region west of the city, a large passenger business and increasing freight business. Thus, the hinterland supporting the growth of Toledo would seem to be beyond the counties of northwest Ohio. However, as the growth of Fort Wayne and Elkhart in Indiana increased — pushing the development of Toledo — the extended hinterland of Toledo fragmented into smaller subregional systems, themselves connected more strongly to Chicago than Toledo. These interregional rail connections eventually would merely expand the regional and national system of cities. Railroads linked distant market towns and provided connections to areas with agricultural or mineral wealth that often were part of different subregional systems.[12]

The two largest cities to which Toledo was connected in the nineteenth century — and represented in the model by arrow heads — were New York City and Chicago. Toledo was linked to New York City first by lake and canal traffic, and later by railroad. Residents living in and near Toledo purchased manufactured goods and insurance policies from New York area producers and companies. Chicago grew to become the "metropolis of the West" — despite Toledo booster Jesup Scott's endeavors.[13] Merchants and traders shipped lumber, beef, and wheat from Chicago through Toledo by rail. Toledo area residents sometimes used these items rather than simply letting them pass through to cities farther east.

[12] *Hosmer and Harris' Toledo Directory* (Toledo: Riley and Company, 1858), 264-266; Ferdinand Ellsworth Cary, *Lake Shore and Michigan Southern Railway System and Representative Employees* (Buffalo and Chicago: Biographical Publishing Company, 1900), 24, 34, 36-37.
[13] David S. Brown, "Jesup Scott's Great West: Promotion and Persuasion on the Ohio Frontier," *Northwest Ohio Quarterly* 71: 3/4 (Summer/Autumn 1999), 84, 88-94.

Equally important to understanding the relationship between the subregional model and economic change around Toledo during the nineteenth century were the ways people interacted with the natural surroundings. The predominant land use throughout northwest Ohio at this time was agriculture. However, swampy conditions stifled the expansion of farming activities. Following successes with ditches alongside roads and railroads and feeder canals, Ohio legislators enacted laws to provide a systematic drainage plan. Thus, beginning in the 1850s and lasting into the twentieth century, the number of acres of improved land increased throughout northwest Ohio, allowing more agricultural activity which in turn, spurred more economic development, especially after the American Civil War.[14]

From the earliest Euro-American settlements in northwest Ohio until the Civil War in the 1860s, the symbiotic relationship between Toledo and its hinterland witnessed a greater degree of rural areas pushing the development of the city. Thus, the economic development and settlement of farming areas stimulated the urban expansion of Toledo, which provided warehouses and a harbor to collect and distribute agricultural produce and stores to supply the demands of the growing population along transportation routes throughout northwest Ohio. The set of physical connections among towns and their hinterlands, produced through internal

[14] *Acts of a General Nature Passed by the Fifty-First General Assembly of the State of Ohio*, vol. 52 (Columbus: Osgood, Blake, and Knapp, 1854), 92-96; *Acts of a General Nature and Local Laws and Joint Resolutions Passed by the Fifty-Second General Assembly of the State of Ohio*, 54 (Columbus: Richard Nevins, 1857), 112-113; *Acts of a General Nature and Local Laws and Joint Resolutions Passed by the Fifty-Third General Assembly of the State of Ohio*, 56 (Columbus: Richard Nevins, 1859), 58-61; Florien Giaque, *The Laws Relating to Roads and Ditches…In the State of Ohio* (Cincinnati: Robert Clarke and Co., 1886); Data compiled from the decennial censuses of 1850, 1860, 1870, 1880, 1890, 1900. Historical Census Browser. Retrieved 30 April 2010 from the University of Virginia, Geospatial and Statistical Data Center: (http://fisher.lib.virginia.edu/collections/stats/histcensus/index.html).

improvements, stimulated links by means of market interactions laying the partial basis for economic development of northwest Ohio.

After the construction of railroads in the 1850s, the Civil War in the 1860s, and the implementation of ditch laws after 1859, business activity at Toledo increased, pulling the development of northwest Ohio, creating stronger connections and more local economic centers through increased market and county political activities and integration. (See Figure 3) Because of grain shipments through the harbor of Toledo — transported mainly along the Wabash and Erie Canal from Indiana — businesses and infrastructure in the city expanded.[15] As Toledo businessmen continued to solidify the city's position as the gateway for products entering and exiting northwest Ohio, the growing urban area began to pull the development of its primary hinterland of northwest Ohio. Forwarding merchants and manufacturing establishments increased the demand for goods produced outside Toledo in New York or Boston. Businessmen desired farmers to produce more crops to market in Toledo and in the eastern cities. Factory owners also needed raw materials from outside Toledo for their workers to craft products that could be sold throughout northwest Ohio or shipped to other markets, thereby creating connections within and outside the Toledo subregional system of cities. Toledo's urban conditions expanded through new businesses, professional activities, residential construction, and manufacturing establishments which, in turn, expanded the demand for increased hinterland production.[16]

[15] A. E. Schultz, "Grain Shipments at Toledo for the Past 100 Years" (BGSU CAC MS 247, Box 25, Folder 1).
[16] *Toledo Blade's Annual Statement of the Trade and Commerce of Toledo for the Year 1861*, (Toldedo: Blade Steam Printing, 1862)

A major event providing another set of important connections among northwest Ohio towns and Toledo was the gas and oil boom beginning in the 1880s. The surge in economic changes directly affected the development of Toledo, the maturation of the surrounding area, and the strengthening links between these areas. The rapid extraction of these natural resources led to quick economic development for the communities near the gas and oil fields — especially Findlay and Bowling Green — while literally providing the fuel for economic development through new and expanded factories in Toledo.[17] Townspeople in the vicinity of reserves established businesses to extract and sell the resources, as well as starting small factories using gas as the primary fuel, thereby developing the economy within Toledo's hinterland through connections among people and local natural resources. Similar to demands for agricultural products from Toledo merchants, demands by factory owners for fuel for their factories expanded the oil and gas boom, prompting more economic development for the hinterlands and the city once local suppliers provided the resources. Moreover, the natural resource booms enhanced the symbiotic growth of Toledo and its surrounding area, positioning northwest Ohio for continued economic development in the early twentieth century. [18]

Glass production was one factor shaping Toledo's development in the twentieth century. In 1888, Edward Libbey brought his New England Glass Company to northwest Ohio from East Cambridge, Massachusetts, to take advantage of cheap

[17] Edward Orton, *Preliminary Report upon Petroleum and Inflamable Gas* (Columbus: Westbote Company, 1886), 5, 10-11, 31-41, 46-47, 50, 53; Jacob A. Spaythe, *History of Hancock County, Ohio: Geographical and Statistical* (Toledo: B. F. Wade Company, 1903), 94-95; Charles Sumner Van Tassel, *The First One Hundred Years of Bowling Green, Ohio* (Bowling Green: n.p., 1933), 57-58, 62-68.
[18] Barbara Floyd, Richard Oram, and Nola Skousen, "The City Built of Glass," *Labor's Heritage* 2: 4 (October 1990), 71-72.

fuel and new markets available around Toledo. Libbey changed the firm's name to the Libbey Glass Company in 1892 to create a better identification for his work. Over the next four decades, smaller glass companies would merge creating new corporations headquartered in northwest Ohio, but these business dealings and innovations began with Edward Libbey transplanting his company. His products linked the city to other towns and homes in northwest Ohio and the world, providing Toledo with the title of "Glass City" and strengthening connections between Toledo and other subregional systems of cities. [19]

Automobiles transformed Toledo in two major ways in the twentieth century. First, like all cities in the United States, cars allowed people to be more mobile and thus travel and commute more freely. Suburbs developed around Toledo, filling in much former farmland between the one-time periphery of the city and smaller communities beyond Toledo's city limits. This strengthened many connections among urban areas and increased linkages overall. Second, automobile production served as another industry providing an economic base for Toledo. However, nearby Detroit became the center of auto production in the United States by the mid-twentieth century, relegating Toledo factories to make many parts for assembly in Detroit factories. The auto industry helped make Detroit a regional center, while strengthening connections between Toledo and the "Motor City" in Michigan. Thus, the automobile and its relationship to the economic changes in Toledo during the twentieth century could add another stage to the subregional model, with stronger connections both among the urban areas of the subregion, and to other subregions.[20]

[19] Ibid.
[20] George W. Knepper, *Ohio and Its People*, 3rd ed. (Kent: Kent State University Press, 2003) , 297, 348; James T. Patterson, "Ohio 1953: Problems and Prospects" in *Ohio and the World, 1753-2053:*

OTHER CITIES AND THE SUBREGIONAL MODEL

The subregional model can help explain economic changes and the importance of small cities throughout the nineteenth century beyond the areas around Toledo. All burgeoning urban areas had symbiotic relationships between resource usage, transportation infrastructure, agriculture, and manufacturing. However, not all locations experienced the same amount of change in these characteristics or from growth stimuli. Although Toledo, with a population of 131,822, was the twenty-sixth largest city in the United States in 1900, towns with smaller populations functioned as subregional hubs throughout the country. Possible causes for disparities in population between Toledo and other subregional metropolises were the later onset of economic change within the other cities and their differing access to quality production development. Likewise, cities with populations near to that of Toledo in 1900 may still have been growing, thereby leading scholars to mistake the similarities between Toledo and those cities.[21]

Denver, Colorado, had a similar population to Toledo in 1900, but its relationship with other Rocky Mountain towns was significantly different from Toledo's connections with northwest Ohio communities. Denver, with 133,859 residents in 1900, served as a regional — not subregional — metropolis for the mining areas of the mountain west, providing not only a railroad gateway to resources in the area but also key commercial and professional services for the small town boosters established to extract resources. Within the mountain west, agriculture was difficult

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Essays Toward a New History of Ohio, Geoffrey Parker, Richard Sisson, and William Russell Coil, eds. (Columbus: Ohio State University Press, 2005), 140.

[21] *Twelfth Census of the United States*, 1900, Volume 1: Population, "Table XXII—Population of Cities Having 25,000 inhabitants or More in 1900, Arranged According to Population: 1880 to 1900."

due to the topography of the region, but mining activities took advantage of mineral deposits in the mountains to extract wealth. Important economic centers developed from mining towns, although once workers exhausted nearby deposits, many of these communities disappeared. Local boosters often attempted to persuade company officials to construct railroads — providing links to Denver — near their towns to stimulate more economic development. Like Toledo, Denver residents utilized the city's connections throughout its hinterland to develop the urban area, but the key difference between Toledo and Denver was the western city's larger tributary area, stimulating more changes in the early twentieth century.[22]

In central Iowa, Cedar Rapids functioned as an important economic center within the grain producing areas west of the Mississippi, and it served as a subregional hub for east central Iowa. Linked by railroad to the Great Lakes regional metropolis of Chicago, farmers around Cedar Rapids, with a population of 25,656 in 1900, could transport their surplus crops through Iowa gateway cities along the Mississippi to Chicago, in order to accumulate money to purchase farm implements and machinery, household goods, and expand and improve farms. Enterprises in the late 1800s in Cedar Rapids not directly related to agricultural production included a fence manufacturing business, clothing manufacturing, door and sash production, dairy and creamery supplies, furniture factories, brick and lime works, and printing. Transportation linkages and agricultural production spurred the material progress of

[22] *Twelfth Census of the United States*, 1900, Volume 1: Population, "Table 5—Population of States and Territories by Minor Civil Divisions."; Henry Gannett, *Statistical Atlas* (Washington: United States Census Office, 1903), plates 132, 185.

growing towns, thereby providing the basis of east central Iowa's bucolic, small-town nature at the beginning of the twentieth century.[23]

Cedar Rapids, in addition to having good land conditions, served as the transportation hub for various railroad lines linking small towns that functioned as local economic centers. Before railroads entered the city, stage routes and steamboats provided transportation links to other towns. By the first decade of the twentieth century, terminals, freight depots, and other railroad offices and structures occupied land in Cedar Rapids. The Dubuque & Southwestern Railroad connected Cedar Rapids with Chicago, Omaha, Kansas City, and Minneapolis-St. Paul. Smaller cities with connections to Cedar Rapids included Dubuque, Clinton, Davenport, Muscatine, and Iowa City. Railroads — transporting passengers, manufactured items, and agricultural produce — provided the main linkages undergirding economic changes in east central Iowa in the second half of the nineteenth century.[24]

Unlike Toledo and Cedar Rapids, the growth of Birmingham did not have its roots in agriculture. Rather, economic changes affecting the city — founded only in 1871 — developed around coal mining and steel production. Yet, transportation infrastructure and connections to nascent towns and long-established cities had a profound effect on the 'Pittsburgh of the South.' With 38,415 residents in 1900, Birmingham served as a subregional hub within the state of Alabama. With a similar ratio of manufactured product value per square mile as the Toledo area, the area around

[23] *Twelfth Census*, 1900, Volume 1, "Table 5"; Gannett, *Statistical Atlas*, plates 132, 134, 153, 185; Luther A. Brewer and Barthinius L. Wick, *History of Linn County Iowa From Its Earliest Settlement to the Present Time*, vol. I (Chicago: Pioneer Publishing Company, 1911; Evansville: Unigraphic, 1973), 340, 345; Charles R. Tuttle, *An illustrated history of the state of Iowa…*(Chicago: R. S. Peale and Company, 1876), 555, 628.
[24] Brewer and Wick, *History of Linn County Iowa*, 337-339.

Birmingham had strong local connections based upon industrialization and rail links to other southern manufacturing centers. A smaller proportion of land was improved in central Alabama compared to Iowa and northwest Ohio, further implying that expanding manufacturing activities and natural resource utilization were key economic components of market interactions around Birmingham.[25]

Railroads constructed to link the mineral deposits throughout north central Alabama to other areas of the United States stimulated the economic development of Birmingham and nearby communities. Many towns developed along the Alabama Central Railroad, constructed to connect river systems and transported mineral resources. By the 1890s, the progress of Birmingham merchants and manufacturers was rapid and steady, with the city expanding as a distributive center. Wholesale trade increased due to residents retailing and bartering among farmers, mechanics, and miners. As Birmingham entrepreneurs amassed their fortunes, they moved to new residential areas in the city, or relocated to higher lands on the edge of the urban area. By the early 1890s, picturesque Avondale Park was a suburb one and a half miles from Birmingham, while Smithfield went from a cornfield a decade before to having its owner lay out streets. Moreover, the coal and steel industries developing in and around Birmingham in the last third of the nineteenth century provided the basis for continued economic expansion of the area in the twentieth century.[26]

[25] *Twelfth Census*, 1900, Volume 1, "Table 5"; Gannett, *Statistical Atlas*, plates 132, 134, 185.
[26] John Witherspoon DuBose, *Jefferson County and Birmingham, Alabama: Historical and Biographical, 1887* (Birmingham: Caldwell Printing Works, 1887; Southern Historical Press), 246, 261-271; Virginia Van der Veer Hamilton, *Alabama: A Bicentennial History* (New York: Norton, 1977), 130-133.

KEY FORCES OF CHANGE

Economic change via newly created and expanding connections involved government, notions of progress, urbanization, and industrialization. Governments supported settlement and continued development through debates involving the formation and implementation of internal improvement policies. Bringing Euro-American ideas of economics and society to former Indian lands, people acting on their notions of progress stimulated vast economic change through the construction of transportation routes, allowing easier travel and the creation of market connections among people. Settlers, town boosters, and businessmen required reliable transportation routes and well-developed land — all transformations of nature — to thrive and expand their farms, cities, and economic ventures. Progess-minded actions grew larger urban areas and manufacturing establishments, and urbanization and industrialization, themselves, were intricately connected economic changes. Early examples of these phenomena included the expansion of trading posts into larger settlements with residences, enlarged market places, the presence of political and government officials, and small workshops for mechanics. Later examples included the enticement of immigrants to settle and take jobs in the expanding towns, thereby allowing the manufacturing establishments to grow, drawing more workers and stimulating further urban expansion. Each of these ideas of change may be explained using the subregional model.

Characteristics of populations shaped conditions for cities to function as subregional hubs. As seen with Birmingham and Cedar Rapids, the connections with varying sized hinterlands determined the status of a subregional hub, not just the population size. Despite bigger populations having more people to interact with one another

creating market linkages, having a certain number of people did not suffice in determining the realization of a city being a subregional hub. Denver contained a similar number of people relative to Toledo in 1900, but the Colorado city's hinterland was much larger than northwest Ohio. However, the communities connected to Denver via railroads were frequently separated from one another by mountainous terrain forcing them to do business with one another through Denver, thereby enriching the business enterprises of the regional metropolis. Thus, the distribution of people, settlements, and resources impacted the development of subregional hubs.

The quantity and quality of urban-rural interactions also determined the development of subregional hubs and their positions *vis à vis* their hinterlands. Few large cities formed in Iowa because of the vastness of the hinterland of Chicago, of which Cedar Rapids was an integral part. Directly west of the Windy City, Iowa was situated in the 'breadbasket' of the central United States, where large amounts of agricultural production supported numerous local economic centers, which in turn sustained subregional hubs. However, transportation connections from and specialization in Chicago drew much of the agricultural production from Iowa, lessening the ability for cities to greatly expand in the Hawkeye State. Despite boosters' efforts and beliefs, Toledo could not challenge Chicago as the metropolis of the Great Lakes region because the growing network of towns in Indiana limited the ability of Toledo's entrepreneurs to create strong connections to their west. Chicago drew from an expansive hinterland to its west, east, south, and north. Thus, farmers and merchants in Indiana focused their attention towards Chicago as a more important railroad and lake transportation hub than Toledo.

Key to urban-rural interactions, nearby natural resources effected economic change in the nineteenth century. Good farmland — either improved privately or through public actions such as ditch laws — or abundance of natural resources — natural gas, petroleum, or coal — combined with adequate transportation routes allowed cities to become subregional hubs within the United States system of cities in the nineteenth century. For Toledo and Cedar Rapids, productive farmland allowed farmers to market surplus crops to earn money to buy farm supplies and manufactured goods. Store owners catered not only to rural residents but also to the growing urban population working in law, medicine, education, manufacturing, and government. Central Iowa generally had better natural land conditions than lands around Toledo; draining the Great Black Swamp covering much of northwest Ohio not only provided better farmland but also allowed ditch diggers and tile makers numerous opportunities to make money. Resource extraction helped spur economic change in and around both Birmingham and Toledo. Coal, petroleum, and natural gas literally fueled development in the form of new manufacturing establishments and distributive businesses. Without adequate natural resources throughout their hinterlands, many potential communities often languished.

The subregional model contains elements based upon the histories of medium-sized urban areas and geographic theories that help to describe the economic change in the United States during the nineteenth century. Transportation infrastructure, market relations, and government connections united cities and towns. Quicker, year-round routes provided stronger links. These routes developed from nascent business interactions while spurring new commercial activity that would entice more

people to settle in and around growing cities. Federal, state, county, and township government policies affected various communities, thereby linking them. Policies developed at various stages of government affected economic change in early and later stages of growth — before many residents settled in areas or after urban lands expanded. Many of these activities were related to resource usage which connected farms, mines, and smaller communities to local economic centers. Lacking resources or the ability to utilize them stifled economic change. Finding ways to use resources are themselves changes in business and commerce.

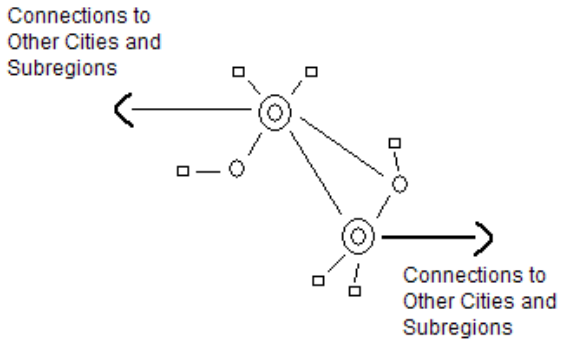
With the economic changes of the twentieth century and beyond, subregional systems of cities changed both in structure and the ways of explaining economic development. The introduction of the automobile added not only a new method of transportation shaping the system of cities, but also new manufacturing activities molding new connections among urban areas. People built new roads and improved old roads to accommodate cars, allowing further flexibility for travel and stronger links among cities. The ease of travel automobiles brought to residents of small towns permitted further concentration of commercial activities in larger towns, stimulating urban expansion of bigger cities and the economic stagnation and decline for smaller communities and some former local economic centers. Like canals and railroads in the nineteenth century, cars spurred new market interactions, but the flexibility of travel using automobiles — especially after World War II — strengthened the connections among subregional hubs and small towns transforming urban networks even more.

APPENDIX 1

Map 1: Northwest Ohio Showing Important Cities and Towns

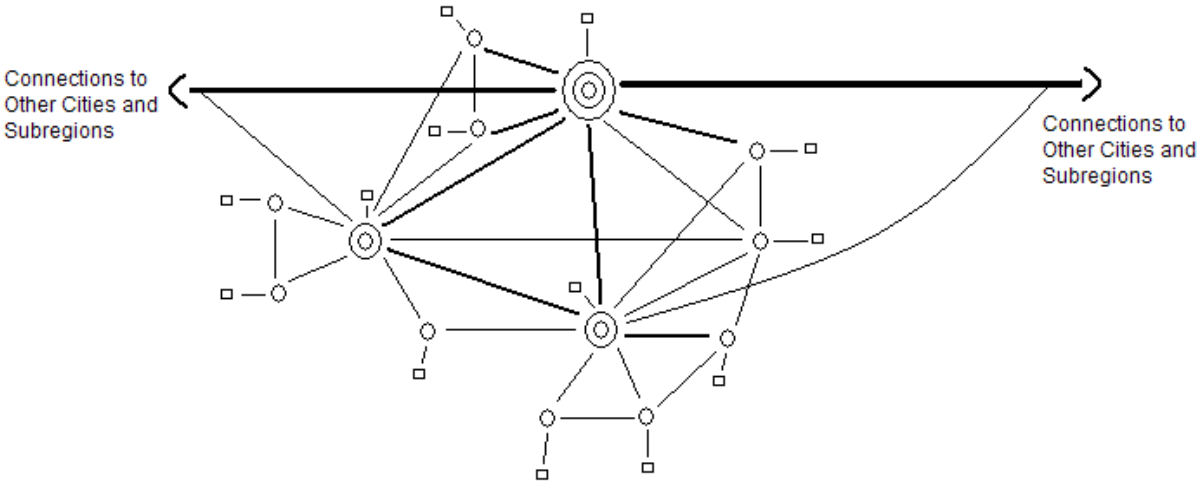
Note: Contemporary county boundaries shown.

Figure 1: Subregional Model—Early Stage



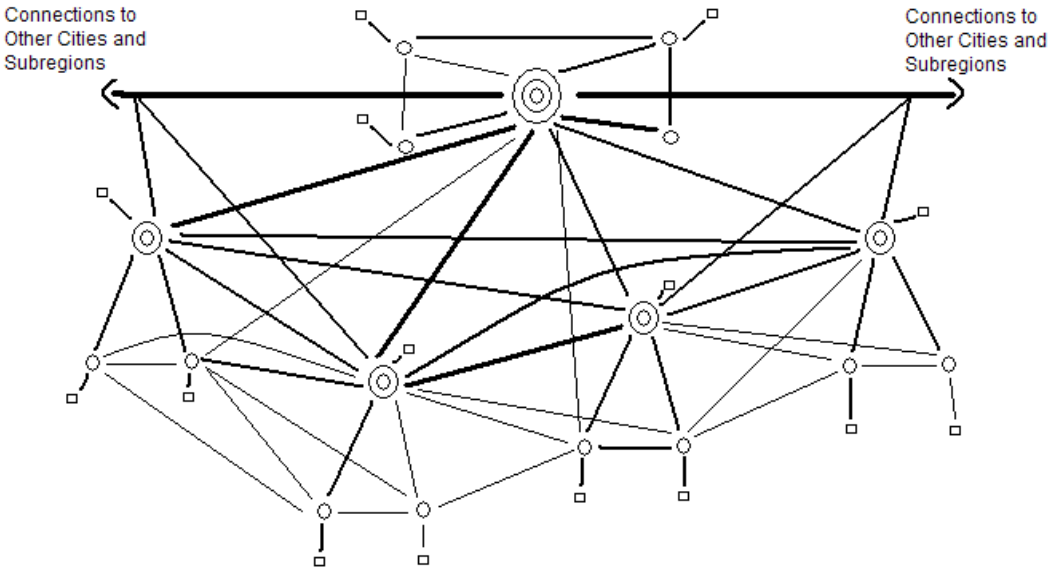
Note: Two concentric circles represent local economic centers; single circles represent small towns; rectangles represent farms; and lines represent connections with heavier lines denoting stronger connections.

Figure 2: Subregional Model—Middle Stage



Note: Three concentric circles represent the subregional hub; two concentric circles represent local economic centers; single circles represent small towns; rectangles represent farms; and lines represent connections with heavier lines denoting stronger connections.

Figure 3: Subregional Model—Late Stage



Note: Three concentric circles represent the subregional hub; two concentric circles represent local economic centers; single circles represent small towns; rectangles represent farms; and lines represent connections with heavier lines denoting stronger connections.

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