

# Regional Economic Development

## —A Survey of Theories in the Past Two Centuries (1800-2000)

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### Abstract

The purpose of this paper is to survey the evolution of theories in the field of regional economic development in the past two centuries (1800-2000) before the new millennium. Theories from the ‘spacial’ dimension and from the ‘economic’ dimension are understood as the classical foundation of the field. Important theories are identified and discussed for regional economic development. Specifically, the topics examined here first center around the mechanisms behind regional economic growth, answering questions such as why growth happens in certain regions, why growth can shift to other places, and what factors or environments can foster growth in certain regions. Then the more recent discussions focus on theories regarding globalization and spatial division of labor, industrial districts, and social institutions that foster the growth of regions. The paper closes with a brief discussion of the spatial views from the mainstream economists in the late twentieth century. Future research needs to examine main theories in the twenty-first century in the field of regional economic development to complete the picture.

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### Introduction

The study of regional development is twofold. One aspect is “regional,” which implies a spatial focus; the other is “developmental,” which implies an economic focus. Thus, two classical foundations are identified for this field. The first one, represented by theories from Von Thunen, Weber, Christaller and other scholars, seeks to uncover economic reasons for certain spatial layouts; the second came from orthodox economics such as that of Smith, Ricardo, Marshall, and Keynes. These two classic foundations are discussed in the next section. What bridges the two traditions is the understanding of

“agglomeration,” which means, simply put, that economic activities tend to agglomerate in certain regions for growth. “Trade,” due to its inherent spatial attribute (i.e., the exchange of goods among different locations), can be another bridging factor. Many scholars have dedicated their work to exploring the mechanisms behind regional economic growth (see section 2), to answering questions such as why growth happens in certain regions (2.1), why growth can shift to other places (2.2), and what factors or environments can foster growth in certain regions (2.3). As the world is undergoing dramatic changes

in technology, production organization, and markets under the halo of “globalization,” scholars from different fields are investigating new justifications and new patterns for regional development (section 3). The overall review paper is developed chronologically, although not strictly so, with a slight focus on more recent theories.

## 1. Classical Foundations

### 1.1. Theories from the “Spatial” Dimension

#### 1.1.1. Theories of Firm Location

Associating rent (land price) with the distance of concentric rings having specific functions from the city, Von Thunen (1826) advanced a theory of the location of agricultural production under his assumption of a totally isolated economic system. Almost one century later, Alfred Weber (1909) developed a theory of industrial location. In his book, Weber believes that transportation costs are theoretically the most important factor determining industrial location, and labor costs are identified as the second geographically important factor influencing the location decision. Agglomeration is added as the third factor of importance for industrial location. Hotelling (1929), from the view of maximum market share, pointed out that firms tend to co-locate through an example of competing ice cream vendors on the beach. Hoover (1948), in his book, *The Location of Economic Activity*, summarized location factors from the views of both market access and production cost, and discussed the shift of locations. Another summary was done later by William Alonso (1975). Based on minimizing transportation costs and adjusted by other factors such as tax and labor costs, he applied the method of overlaying “isotims” to show how to locate firms in several concrete analytical scenarios.

#### 1.1.2. Models of Urban Systems

Walter Christaller (1933) first moved the scale for these spatial-dimension discussions up to a larger level. He explored whether there are economic-geographical laws determining the number, size, and distribution of towns. In his central place theory, Christaller built his central place system of hexagonal regions with different orders (i.e. different market size) based on the range of central goods, or Market Principle. Thus he formed the first purely theoretical spatial order of towns. As supplements to this market principle-based spatial order, he added the Traffic Principle and the Separation (administrative) Principle to further adjust the spatial layout. Drawing on Christaller’s ideas, August Lösch (1938) formed his ideal economic region by throwing nets of hexagons, with each net representing the trading area of a certain product, over the vast homogenous plain. The self-sufficient, systematic arrangements of the nets of market areas of the various commodities “at the same time provide for the best lines of transportation” (Losch, 1938: 101).

In the exploration of regional development from spatial dimension, Walter Isard made a breathtaking and ambitious effort. In his magnum opus, *Location and Space Economy* (1956), Isard tried to “improve the spatial and regional frameworks of the social science disciplines, particular of economics, through the development of a more adequate general theory of location and space-economy,” which embraces “the total spatial array of economic activities, with attention paid to the geographic variations in prices and costs” (Isard, 1956: viii, 53). His comprehensive equilibrium model, using a system of mathematical equations, “seeks to bring the separate location theories into one general doctrine, ... and to fuse the resulting doctrine, ... with existing production, price, and trade theory (in the economic field)” (Isard, 1956: 23). However, despite his effort, he failed to bring the spatial concept to mainstream economists’ attention<sup>1</sup>.

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<sup>1</sup> See Krugman, Development, Geography, and Economic Theory (1995). PP56-57.

### 1.2. Theories from the “Economic” Dimension

This tradition arose from economic theories at the macro level. Economic growth theory can be traced back to Adam Smith. In his prominent work *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), Smith defined wealth as production (supply) for purposes of consumption (demand) and sought its sources in division of labor, capital accumulation, and trade. Later, David Ricardo (1817) stressed that free international trade is very important for economic growth. Different from Adam Smith’s “absolute advantage” trade, Ricardo proposed his “comparative advantage” theory, which asserts that countries should export goods that their labor produces with relative high productivity and import goods that their labor produces with relatively low productivity. Following Ricardo on the discussion of international trade, Bertil Ohlin (1933, 1967) explored a theory of interregional trade. Defining regions as the area within which factors are fully mobile, he believed that regions have different factor endowments, and interregional trade is necessary because “each region has an advantage in the production of commodities into which enter considerable amounts of factors abundant and cheap in that region” (Ohlin, 1967:12).

In his highly influential book *The General Theory of Employment, Interest and Money*, John Maynard Keynes (1936) pointed out that overall demand determines the supply of production and the level of employment, not the other way around<sup>2</sup>. One significant contribution of Keynes is his initiation of the theory of government’s role in economic development to remedy market inefficiency. According to him, it is necessary for government to combat unemployment using tools such as expansionary fiscal policy (Hirschman, 1981). It was Keynes’ theory that laid a solid foundation for state intervention, which is also one important school of

thought in regional development theories (section 2.3).

Alfred Marshall was another extremely influential economist contributing to regional development theory, who coined the distinction between external scale economy and internal scale economy. Whereas internal scale economy is realized on the individual firm level, external scale economy is based on “the general development of the industry”, providing advantages in the use of highly specialized machinery, a local market for special skills, subsidiary trades. “The mysteries of the trade... are as it were in the air” (Marshall, 1890: 271-314). Marshall (1890) was also the first to explicate increasing return, diminishing return and constant return. The law of increasing return means that “an increase of labor and capital leads generally to improved organization, which increases the efficiency of the work of labor and capital” (Marshall, 1890: 318). Increasing returns can be both internal to firms and external to firms, which induce internal scale economy and external scale economy respectively. However, increasing returns is not the only factor causing external economy. To a large degree, it is the understanding of increasing returns that explains the economic mechanism behind the most essential foundation of regional development theories: agglomeration economy.

## 2. Mechanisms of Regional Development —Modern Debates

### 2.1. Agglomeration and Uneven Development

As mentioned above, the concept of “agglomeration” bridges the spatial dimension theories and the economic dimension theories, and agglomeration economy is the foundation of regional development studies. Agglomeration economy is realized both at firm level and regional level. Firm

<sup>2</sup> “The propensity to consume and the rate of new investment determine between them the volume of employment, and the volume of employment is uniquely related to a given level of real wages” (Keynes, 1936: 30).

level agglomeration economy, known as economy of scales, can be explained by increasing returns, while regional level agglomeration is explained by external economies.

Allyn Young (1928), based on Adam Smith's arguments on division of labor and Alfred Marshall's understanding of internal and external economies, systematically proposed and analyzed increasing returns. Young argued that they are mainly the result of "economies of capitalistic or roundabout methods of production"<sup>3</sup> within firms and are secured by the progressive division of labor, which then depends upon the extent of market<sup>4</sup>. Increasing returns are reflected in both industrial integration and industrial differentiation.

Later, Hoover (1948), in his book *The Location of Economic Activity*, gave a clear classification of agglomeration economy:

- 1) Larger-scale economies within a firm, consequent upon the enlargement of the firm's scale of production at one point;
- 2) Localization economies for all firms in a single industry at a single location benefit from local labor pool, knowledge sharing and intermediate inputs;
- 3) Urbanization economies for all firms in all industries at a single location enjoy public infrastructure, urban services, etc. (Hoover, 1948; Isard, 1956: 172). The latter two can be considered as external economies.

Raymond Vernon (1960) explored the kind of industries that greatly enjoy external economies. Using New York as an example, Vernon proposed that industries facing great uncertainties tend to concentrate together due to external economies: the need to share certain common facilities, the need to tap these facilities at top speed, and the need for face-to-face contact. Feeling that most discussions

on external economies had been limited to intra-industry or industries with direct supply relationship in terms of production, Benjamin Chinitz (1961), through the contrasts in agglomeration in New York and Pittsburgh, put forward the importance of interindustry external economies due to factors such as entrepreneurship, capital, labor, land, and intermediate goods and services, from the supply side view.

Taking a macroeconomic perspective, North (1955) sought the reason why regions grow. He emphasized that export is the engine of regional growth through the determining contribution of the export industries or "economic base" to regional income. Tiebout (1956) disagreed with North's export base proposition by arguing that export is not the sole determining factor for regional income. Jane Jacobs (1984) further critiqued North's point by showing the failures of supply regions (or export regions in North's words). Instead, she proposed that the basis for economic expansion is the activity of city import-replacing, which induces five growth forces—markets, jobs, transplants, technology, and capital—necessary for further economic expansion.

Carrying on Ricardo's comparative advantage theory, neoclassical trade theory proposes that countries are different in endowments of factors of production, and a country will produce and export goods whose production makes intensive use of factors of production which are relatively abundant (cheap) before trade. Neoclassical trade theorists hold a very optimistic view that trade will diminish cross-national differences in factor prices and that trade makes all nations better off. North (1955) also argued, in keeping with neoclassical models of interregional and international trade, that "with long-run factor mobility more equalization of per capita income and a wider dispersion of production"

<sup>3</sup> See Young, 1928: 531. "Roundabout methods of production imply the use of more capital in relation to labor." (Nicholas Kaldor, 1985: 65).

<sup>4</sup> Young believed that "division of labor depends in large part upon the division of labor." This seemingly tautological statement arises because "the division of labor depends upon the extent of the market, but the extent of the market also depends upon the division of labor" (Young, 1928).

will be expected, since the export bases of regions tend to become more diversified and lose their identity as regions' income grows and spills over into new activities. Thus, ultimately, equilibrium is achieved.

Gunnar Myrdal (1957) held a different view that the development of regional economies will be uneven spatially, and lead to disequilibrium, due to the principle of "circular and cumulative causation." Although the "spread effects," operating through ways such as increased demands for products from backward regions, give benefits to the relatively poor, the negative impacts, termed "backwash effects" by Myrdal, help the rich regions to accumulate more wealth by attracting selective labor, capital, goods and services from the poor regions. Similarly, breaking down the influences of developed regions to underdeveloped regions into trickling-down and polarization effects, Albert Hirshman (1958) believed that "international and interregional inequality of growth is an inevitable concomitant and condition of growth itself." "Trickling-down" takes effect mainly by the purchase and investment of developed regions to underdeveloped regions, while "polarization" is realized by the former's depriving the latter of their talents as well as capital (however little). As a policy proposition, the government can intervene in the growth balance between rich and poor regions by making public investments.

Nicholas Kaldor also addresses disequilibrium development. He made three important points: First, the continuous economic process is driven by endogenous forces, which can be explained by increasing returns, not exogenous forces. Indeed, the only truly exogenous factor is the "heritage of the past." Second, the economic process, enabled by increasing returns, tends to cluster around geographic centers. Third, "there is no inherent tendency to anything that could be called an equilibrium, or an equilibrium path" (Kaldor, 1985).

The benefits from free trade cannot be equally shared among regions or countries, thus leading to "cumulative causation" whereby some regions gain at the expense of others, resulting in increasing inequalities between relatively prosperous and relatively poor areas (Kaldor, 1970, 1972, 1985).

Additional important arguments for "disequilibrium" are found in Francois Perroux's works (1988). Perroux argued that all development is generated by "clustering, cumulative, and propulsive" effects rendered by growth poles or development poles. However, he believed that there are two different phases after establishing a pole: attraction (or clustering) and expansion, which corresponds to Myrdal's "backwash effects" and "spread effects," respectively, but occurring sequentially. Economic policies thus should be able to facilitate the growth of such poles, and the choice of the growth-inducing industry poles is to be given priority to those industries whose propulsive effects can be anticipated on existing industries and the environment. This growth pole strategy is especially encouraged in developing countries. However, few successes have been observed in attempts to creating growth poles in practice.

## 2.2. *Technology, Cycles, and Growth*

While growth happens only in certain regions and there is uneven development, as discussed in the last subsection (2.1), the group of regions benefiting from the uneven development will not always remain constant. In other words, the relative position of core and periphery can change. This subsection discusses theories on why growth can shift to other places.

One main explanation for the shift can be found in the theory of economic cycles. The concept of cycle was first developed on a historical scale known as "long wave" theory. By charting the wholesale price level, the rate of interest, wages and foreign trade, and some other index from the early

nineteen-century, Kondratieff (1924) discovered the existence of cyclical long waves of an average length of about 50 years in the capitalistic economy. This article inspired further thoughts from other scholars later. Joseph Schumpeter related the cycles with technology revolutions in history. He proposed his well-known argument that the process of “creative destruction [which can be caused by innovation<sup>5</sup> such as new commodities, new technologies, new sources of supply, and new types of organization] incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one.” Each of those revolutions, occurring actually in discrete rushes which are separated from each other by spans of comparative quiet, propels a new “business cycle” (Schumpeter, 1939; 1942: 83, 84). For Schumpeter, the first cycle was caused by the Industrial Revolution, and occurred from 1785 to 1842. The second one was based on the revolution of railroads and the Bessemer process in steel; it ran from 1842 to about 1895. The third revolution, from the mid-1890s to 1930s, was based on the chemical industry and on the beginnings of the electrical and auto industries (Hall, 1985). Later, Peter Hall (1985) defined the fourth wave which can be dated from World War II until approximately the mid-1980s. The concept of “long wave” was explicitly applied to a geographical scale<sup>6</sup> (spatially), also by Peter Hall. He further analyzed the characteristics of the places where new industries, and thus new development, can be triggered. Rostow (1960) offered a historical view on regional development in his stages-of-growth theory. He believed that all societies lie within one of five categories: the

traditional society, the preconditions for take-off, the take-off, the drive to maturity, and the age of high mass-consumption. He also recognized that a surge of technological development is a primary stimulus for take-off.

“Product cycle” theories explain economic growth shift from a micro level, contrasting with the macro perspective of “long wave.” The concept of “product cycle” dates back to Kuznet (1930) and Burns (1934), who identified that industries experience “a period of experimentation, a period of rapid growth, a period of diminished growth, and a period of stability or decline” (Norton and Rees, 1979: 145). Vernon (1960) emphasized the spatial aspects of any new industry’s development cycle. Using New York as an example, he believed that industries in different stages prefer different locations. In the early stages, uncertainty makes firms concentrate in a favored location for external economies; “then, as maturity sets in, these industries are likely to spread out to lower-cost locations” (Vernon, 1960). Norton and Rees (1979) applied the idea of product cycle to explain the decline of the core (“manufacturing belt”) and the rise of the periphery regions in the United States and associated these regional industrial shifts to technological changes<sup>7</sup>. Later on, in 1979, Vernon extended his understanding to an international scale<sup>8</sup>. By investigating MNCs (Multinational Companies), he found that to reduce production costs and to offset the loss of technology advantages in home countries, subsidiaries of the firms are built in other countries facilitated by the standardization of products on an international scale or the localization of products in other countries. Furthermore, “the interval of time between the introduction of any new product in the

5 Innovation is defined as the setting up of a new production function (Joseph Schumpeter, *Business Cycles*, 1939: 87). Innovations are carried out by entrepreneurs (102).

6 “The first and second waves were dominated by Great Britain, though the United States and Germany began to emerge during the second; the third was dominated by these two countries; in the fourth...the United States was predominant with Japan just beginning to appear on the stage” (Hall, 1985).

7 The growth industries in the periphery regions are “high technology” sectors (Norton and Rees, 1979).

8 The idea of product cycle also laid a foundation for international spatial division of labor, which is further explored in section 3. Developed countries move the factories to developing countries when their products reach a maturity stage.

United States and its first production in a foreign location has been rapidly shrinking” (Vernon, 1979).

Emphasizing the effects of corporate strategies, especially those by oligopolies, Ann Markusen (1985) proposed the theory of “profit cycles” (in comparison with product cycles), which is based on the idea that “regional shifts in production and employment are not simply the product of changing factor endowments or shifting consumer demands but of disparate strategies undertaken by corporations experiencing different historical moments of long-term profitability cycles.” Firms undergo a cycle of four sequential profitability stages from “superprofits” to “profit squeeze,” and five spatial patterns corresponding to profit cycle stages: concentration, agglomeration, dispersion, relation, and abandonment (Markusen, 1985:1-7, 43-55).

### 2.3. *Institutions, State and Regional Growth*

Aside from suggestions to promote regional development by developing technologies, fostering export-oriented industries, adopting import substitution strategies, or creating growth poles, a considerable amount of work has also stressed the significant roles of institutions and the state in development.

Polanyi (1957) highlighted the importance of institutions in economic development in his paper “The Economy as Instituted Process.” He argued that “the industrialization of underdeveloped countries involves, on the one hand, alternative techniques; on the other, alternative methods of instituting them,” and “the human economy is embedded in institutions” (Polanyi, 1957: 249, 251).

Gerschenkron (1962) told the story of European industrialization of then backward countries such as France, Germany, and Russia in the nineteenth century. In face of the scarcity of capital, technology, and matured labor in backward countries, institutions (such as financial institutions, i.e. banks) and the

state are found to be great forces in promoting the industrialization process. However, the roles of these factors are changing with regard to conditions and degrees of backwardness. Moreover, “in every instance of industrialization, imitation of the evolution in advanced countries appears in combination with different, indigenously determined elements” in backward countries (Gerschenkron, 1962). Through his observation of the American economy, Alfred Chandler (1977), from a micro-level view, proposed that the modern business enterprise was the institutional response to the rapid pace of technological innovation and increasing consumer demand in the United States during the second half of the nineteenth century.

Chalmers Johnson (1982) deemed the Japanese economic “miracle” not as the result of several separated institutions such as the lifetime employment system and the seniority wage system, but the result of a strong “developmental state.” To guide and drive the industrialization of Japanese society, the Japanese developmental state (or plan-rational state) set substantive social and economic goals, built close relationships between government and business, and made and executed industrial policies. Developmental state is very important for late industrialization countries. However, borrowing a few Japanese institutions would be futile or even harmful if the institutions were not understood within the whole economic system.

Similar to Johnson’s “developmental state,” Alice Amsden (1989) attributed Korea’s success in its industrialization process to an “interventionist state,” which intervenes “with subsidies deliberately to distort relative prices in order to stimulate economic activity.” In the case of Korea, big business, *chaebol*<sup>9</sup>, consolidated its power in response to the government’s performance-based incentives. Amsden also characterized Korea’s mode of

<sup>9</sup> Diversified business groups with especially large size (Amsden, 1989).

industrialization as learning, which is appropriate for industrialization of “backward” countries in the twentieth century based on borrowed technology.

Later scholars argued that the state has an only limited role. Richard Doner (1992), through his five Asian auto cases, argued that “states may not offer the sole or the best institutional responses to collective dilemmas inherent in industrialization”. Business groups, producer’s associations, and/or public-private consultative bodies may be better suited for this purpose (Doner, 1992). Ash Amin (1999) stressed his institutionalist perspective on regional development, which tends to favor bottom-up, region-specific, longer-term and plural-actor based policy actions such as strengthening networks of associations, building clusters of interrelated industries, learning to learn and adapt, and broadening the local institutional base, in order to attain regional economic competitiveness in the globalization context.

A historical view of institutions was provided in Zysman’s work (1994). He argued that “there are historically created, institutionally rooted national development trajectories.” Historically rooted institutions generally include the character of the state, the character of the labor relations systems, the organization of the financial system, and the legal/regulatory system. They establish markets, structure how buying, selling and the very organization of production take place, and generate patterns of policy, patterns of trade and distinct organizational styles in government and corporations by setting down patterns of constraints and incentives which shape behaviors of individuals, workers, corporations and government. This historical perspective of institutions echoes both the earlier path dependency arguments of Rostow, and those of later mainstream economists (section 3.3).

### 3. Regional Development Theories in the New Era

New regional development theories are the results of undergoing profound technological, economic, and social transformation, which can be traced back to the reorganization of industrial capitalism in the late 1960s and 1970s. The most striking feature of this reorganization of industrial capitalism is the internationalization of production, which manifests itself clearly in the spatial division of labor. Since the late twentieth century, a more profound transformation, under the name of “globalization,” is becoming evident, which brings us to the era of the “new economy.” Section 3.1 discusses these new trends and new justifications for “spatial” concerns, followed by section 3.2, where new regional development patterns and strategies are investigated under the “new economy” context. Finally, the “spatial” concerns of economic activities find repercussions in mainstream economists’ works, where efforts are made to formalize (or mathematicalize) traditional industrial location theories (section 3.3).

#### 3.1. Globalization and Spatial Division of Labor

##### 3.1.1. Spatial Division of Labor in 1970s, 1980s, and the “Globalization” Era

The concept of spatial division of labor was explored during the reorganization of production in the 1960s and 1970s, which was mainly characterized by a transition from mass production to flexible production<sup>10</sup>, or from ‘Fordism’ to ‘post-Fordism.’ According to Massey (1979), “spatial division of labor” means that “any economic activity will respond to geographical inequality in the conditions of production, in such a way as to maximize profits” and this way of response to geographical unevenness varies greatly with changing conditions of production

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10 Flexible production has been experienced in two forms: flexible specialization (defined by Piore and Sabel) and high-volume flexible production (defined by Cohen) (see Castells, 1996: 154; Cohen, 1993: 112).



(Massey, 1979: 234). Furthermore, Massey made a major contribution by identifying two different forms of spatial division of labor: sectoral spatial specialization, and functional spatial specialization. The latter, known as new spatial division of labor, results from changes in the form of organization of production such as, most importantly, the increasing size of individual firms and the separation of production based on different functional modules (Massey, 1979: 235-239).

Folker Frobel et al. (1978) discovered that starting from the late 1960s and early 1970s, a “new international division of labor” was replacing the classical international division of labor, that is, the contrast between the industrialized center countries producing capital and consumer goods, and the nonindustrialized periphery countries supplying raw materials. The new international division of labor, driven by capital’s minimizing production cost for its expansion and accumulation, is characterized by the increasing relocation of manufacturing in underdeveloped areas, and is shaped by three factors: a huge worldwide labor pool, modern transport and communication technology, and the fragmentation of production tasks.

Viewing this notably new division of labor and the increasingly competitive Japanese economy characterized by its flexible production, Cohen and Zysman (1987) pointed out a possible crisis underlying the United States economy because manufacturing matters. They argued that “a substantial core of service employment is tightly tied to manufacturing” (Cohen & Zysman, 1987: 3). Furthermore, R&D has to be tightly tied to the manufacturing of the product in order to keep the cutting edge of incremental innovation. Besides the fact that “production is where the lion’s share of the value is realized,” the service industry also cannot serve as a main export resource to sustain the productivity and high wage of the United States due to reasons such as the small scale service trade,

a less liberal international trade environment for trade in services than for trade in goods, and so on (Cohen & Zysman, 1987).

Profound technological, economic, and social transformations since the late twentieth century impels a “new economy.” In this new economy, fast economic growth is being experienced, and “sources of productivity are increasingly dependent upon the application of science and technology, as well as upon the quality of information and management, in the process of production, consumption, distribution, and trade” (Castells, 1993). This new economy is evolving to be increasingly informational, global, and networked. Here, “informational” means the fundamental role of information and communication technology; “global” means that “the core activities of production, consumption, and circulation, as well as their components (capital, labor, raw materials, management, information, technology, markets) are organized on a global scale” (or, as we term it, “globalization”). By “networked,” we mean that the organizational logic of this new economy is networked, flexible, and horizontal (Castells, 1993, 1996).

Gereffi and Korzeniewicz believe that the “globalization” economy needs to be reconceptualized from a global-commodity-chain perspective, instead of a nation-states perspective. From the global-commodity-chain perspective, industries and firms constitute its primary analytical units. Either a producer-driven chain or a buyer-driven chain, as they define them, can help explain the governance structures of coordination and control in global industries (Gereffi and Korzeniewicz, 1994, see Gereffi, 1997). This global-commodity-chain view, as a matter of fact, echoes Massey’s “functional” spatial specialization.

While people are surrounded by statements on the overwhelming influences of “globalization,” critiques come as well. Robert Wade (1996), for

instance, after listing his data analysis from aspects such as trade, foreign direct investment, finance capital, behaviors of multinational corporations, and technology production, stated that “the world economy is less internationalized, less integrated” than “globalization” suggests and national economies are still the primary unit for economic activities.

Despite the “globalization” critiques, it is clear that international spatial division of labor in the new era not only differs markedly from the old center-periphery model, but also cannot be explained by Massey’s functional spatial specialization. It is hard to categorize a whole nation into one or the other side of the division. Hence it comes as no surprise that Gereffi and Korzeniewicz use the global commodity chain method to analyze the new international production system (1994), and Castells proposes a new international division of labor where he specifies “triad power, the rise of the pacific, and the end of the Third World” (1996: 107).

### *3.1.2. New Justifications for Regions under “Globalization”*

Contrary to the commonly held view that new transportation and communication technologies are beginning to subvert the legitimacy of cities and regions, we see that metropolitan areas continue to expand at a remarkable rate. Scott, after his data analysis, claimed that because “production and work depend upon myriad detailed exchanges, dealings, flows, and webs of association that cannot be sustained effectively over long distances,” “the geography of industrial and service development displays a widespread proclivity to locational clustering in the form of dense polarized complexes of producers on the landscape,” and this spatial clustering serves as the unit of his “global mosaic” (Scott, 1998: 48, 63). Later, Scott further explored these spatial units under the name of “global city-regions” and demonstrated the continued importance of urban concentration in the globalization context.

Globalization actually has accentuated the process of clustering: clustering enables firms to respond to fast-changing global challenges by allowing them greater levels of operational flexibility and by enhancing their innovative capacities. “Large city-regions are coming to function as territorial platforms from which concentrated groups or networks of firms contest global markets” (Scott, 2001: 14). In particular, in developing countries, global city-regions represent highly productive and innovative economies, which enable continuous attraction of more efficient economic activities, thus connecting them to the vibrant globalization network.

In their *Splintering Urbanism* (2001), Graham and Marvin classify the urban landscape into three types: 1) the ‘sticky’ places of global capitalism, or global and second-tier cities; 2) routine production, service, and extraction centers; and 3) subordinate and bypassed territories. The first type produces high value-added goods, services and knowledge outputs with examples such as global financial capitals, high-tech industrial districts, government complexes, and cultural production centers. The second type “may be global nodes for the production of high-volume manufacturing goods; or places that can deliver routine services online or via telephone links to the core city regions; or sources for the extraction and production of various types of raw materials” (2001: 306). The labor and the assets possessed in the third type are ignored or bypassed by the logics of the ‘network society.’ In order for places to develop, it is crucial for them to be directly or indirectly connected to those ‘sticky’ places (Graham and Marvin, 2001; Castells, 2002).

### *3.2. Regions, Industrial Districts and Social Institutions*

Successful regional development in the “globalization” context is characterized by flexibility. These flexible regions usually have a large amount of small- and medium-sized firms with very close interrelationships among them, manifested

mainly as intense cooperation and competition.

The Emilia-Romagna region in Italy was first observed as successful by Sebastiano Brusco (1982). One significant feature of his Emilian model is the large number of small firms, which are “frequently grouped in relatively small zones according to their product, and give rise to monocultural areas in which all firms have a very low degree of vertical integration and the production process is carried on through the collaboration of a number of firms” (Brusco, 1982: 169). This large number of flexible small firms adds much flexibility to the regional economy by absorbing redundant labor force, building competitive environment, providing advanced technology, and establishing a cooperative basis for the region.

Sabel believed that the re-emergence of the region as an economic unit is a dramatic response to the continuing instability of international markets, which makes the once-dominating mass-production mode outdated. Contrasting with the failures of those “growth pole” or export-oriented regions, the success of new industrial districts such as the Emilia-Romagna region and Silicon Valley manifests the vigor of flexible economies under an unstable global environment. The main feature of the flexible economies is flexible specialization, which is not only a flexible production method contrasting to mass production, but is also defined as a system in which firms (a large proportion of which are small- and medium-sized firms) “know that they do not know precisely what they will have to produce, and further that they must count on the collaboration of workers and subcontractors in meeting the market’s eventual demand” (Sabel, 1988: 53).

The capability to collaborate depends on trust. In his innovative paper on economic action and social structure, Mark Granovetter (1985) illustrated that economic behavior is embedded in structures of social relations to a degree that is lower than that explained by the oversocialized school represented

by sociologists, but higher than is allowed for by the undersocialized school represented by new institutional economists. He stresses the crucial role of concrete interpersonal relations and structures (or networks) of such relations in generating trust in economic behaviors.

Bennett Harrison (1992) notes that “industrial districts,” which have gained increasing attentions since the 1970s and are represented by regions such as Emilia, cannot be seen as a contemporary theoretical construct which is ultimately explicable by conventional neoclassical economic categories of “agglomeration” and “externality” originating from Marshall (1890). Standard agglomeration theory, he argues, “follows neoclassical economics in conceptualizing local economies as collections of atomistic competitors, formally aware of one another solely through the intermediation of price/cost signals,” while modern industrial district theory “emphasizes the interdependence of firms, flexible firm boundaries, co-operative competition and the importance of trust in reproducing sustained collaboration among economic actors within the districts.” Trust, being crucial both when decisions to redesign interfirm linkages are being made and once a link has been forged, needs spatial proximity to nurture the experience essential to building trust.

Sable also stresses the significance of trust. He believes that flexible economies rely on high-trust relations which they reinforce through their operation but cannot generate themselves (1988). Trust, according to Sabel, is the “mutual confidence that no party to an exchange will exploit the others’ vulnerability” (1993). Although it takes a long time to build trust, mutually suspicious groups in the region can redefine their relations and “study” their industries jointly so that they may “discover new sources of vitality that could serve as models for collective reorganization.” Moreover, local government can help in building this “studied trust” (1993: 121, 130).

Robert Putnam (1993) builds a broader concept

of “social capital,” which refers to “features of social organization, such as networks, norms, and trust, that facilitate coordination and cooperation for mutual benefit.” In his influential paper, Putnam illustrated the importance of “social capital” for economic development based on his studies of Italian regions. According to him, social capital is a precondition for economic development as well as for effective government, and tends to be self-reinforcing and cumulative.

Through her analysis of the high-tech industry development in Cambridge, Saxenian (1988) pointed out that “creating a dynamic high-tech region is not a matter of combining ingredients” (such as research university, venture capital, funding, etc.), but of “building institutions and relationships that support innovation.” Her book (1994) was the first to systematically explain the vibrant regional economy of Silicon Valley through three perspectives: local institutions and culture, industrial structure, and corporate organization. Important actors identified for the innovative economy include entrepreneurial firms, government, venture capitalists, universities and research institutes, specialist suppliers and service providers, business associations, and so forth. Their interconnections or relationships can be framed by institutions that provide capital, research, managerial and technical education, training and assistance to entrepreneurs, and market information. Intense competition and cooperation is taking place on a network platform and those actors are the nodes of that network. The most important feature of the Silicon Valley network is that it is dynamic, which is represented not only by the fast changing market and technology but also by the continuous recombination of differently specialized resources. It is in this dynamic network that actors and their relationships are kept updated

and innovated, and a rich array of technological and organizational alternatives can be generated and pursued.

From a strategic perspective, Michael Porter put forward one of the most popular concepts in the 1990s—“cluster”—in order to understand regional economy and location. “Clusters are geographic concentrations of interconnected companies and institutions in a particular field” (Porter, 1998: 78). Because anything that can be efficiently sourced from a distance through global markets and corporate networks is nullified as a source of competitive advantage in the globalization context, clusters are seen as a key competitive advantage for any region. “Clusters” emphasize the relationships among firms and between firms and local institutions, which promote firms’ productivity as well as innovation capability through building a helpful local business environment<sup>11</sup>, and in particular competition and cooperation. He also stressed that policies at the regional level are important and local government should help identify local specializations to reinforce existing and emerging clusters rather than attempt to create entirely new ones.

### 3.3. Spatial Views from Mainstream Economists

Mainstream economists began to write about location, trade and development in the 1990s. Most of their works echo traditional location theories and path dependency theories.

Paul Krugman was the first to realize the neglect of space, and explained that it was because economists “lacked the analytical tools to think rigorously about increasing returns and imperfect competition.” As long as economists can use certain technical tricks such as “Dixit-Stiglitz, icebergs, evolution, and the computer” to produce models in which there are increasing returns and markets are

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11 Porter put forward his “diamond theory” in his book *The Competitive Advantage of Nations* in 1990. He modeled the effect of the local business environment on competition in terms of four interrelated influences, graphically depicted in a diamond: factor conditions, demand conditions, the context for firm strategy and rivalry, and related and supporting industries (Porter, 1998).

characterized by imperfect competition, scholars such as Krugman, Fujita, and Venables attempt to formalize the classical location theories (Krugman, 1991, 1995, 1998). Krugman, using his model and the example of the US manufacturing belt, illustrates the importance of history and increasing returns. In his belief, “an accident led to the establishment of the industry in a particular location, and thereafter cumulative processes took over” (Krugman, 1991: 62).

Brian Arthur tried to prove historical path dependence for industry location and economic development using mathematical models. He concluded that “we cannot explain the observed pattern of cities by economic determinism alone without reference to chance events, coincidences, and circumstances in the past. And without knowledge of chance events, coincidences, and circumstances yet to come, we cannot predict with accuracy the shape of urban systems in the future” (Arthur, 1988: 96). In another paper, Arthur (1989) showed that insignificant historical events may by chance give a certain technology an initial advantage, and later on, due to increasing returns, this technology may eventually lock the economy in to this outcome, which is not necessarily superior to alternatives, not easily altered, and not entirely predictable in advance. Similarly, Paul David, through his study of the story of QWERTY, pointed out the importance of “path dependence.” He stressed that temporally remote events or historical occurrences can exert important influences upon the economic outcome, which can then be “locked in” to this development trajectory due to positive feedbacks caused by, for example, economies of scale, Marshallian externalities and local network externalities, and endogenous technical progress through learning-by-doing and learning-by-using (Paul David, 1985, 1993).

Another group of economists who attempted to model increasing returns (or imperfect competition)

are the “endogenous growth” theorists<sup>12</sup> represented by Paul Romer. Their work, emerging in the 1980s, distinguished itself from neoclassical growth by emphasizing that “economic growth is an endogenous outcome of an economic system, not the result of forces that impinge from outside” (Romer, 1994: 3). The key in their models is how to formalize the technological residual in the production function. Romer (1994) proposed a model in which the residual is determined by knowledge spillovers, and can be represented as a function of labor input and capital investment. In an earlier paper, Romer especially stressed how using and producing ideas are important for economic growth (Romer, 1992). No matter what form in the formulation they adopted, they all take imperfect competition into consideration. As Christaller said in 1933, “that each economic relationship and each economic event are, without exception, related to space and that the spatial relation is also a constituent element of these relationships are facts of which only a few economists are fully aware” (Christaller, 1933: 6). Luckily, with the tools to model increasing returns, mainstream economists had finally started to catch up.

#### 4. Conclusion

In this paper, regional development theories have been surveyed from their two traditions (“spatial” and “economic”) to their new progress in the past two centuries’ development. Although the legitimacy of regional development field has been continuously challenged, it has grown stronger under the new globalization context where regions and spatial economic relationships have increasing significance. Scholars from Isard to Krugman have been trying to create or resurrect this field in mainstream economics by attempting to formalize the relevant

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<sup>12</sup> This line of inquiry can be traced in Arrow (1962), Romer (1986, 1987, 1990), Lucas (1988), Grossman and Helpman (1989), etc. (see Romer, 1994).

issues in mathematical models. However, the challenges may not be resolved solely by new methodology. Future research shall be conducted to examine the more recent theoretical trends of regional economic development since the dawn of the 21<sup>st</sup> century to complete the picture. The current paper can help prepare future scholars in the field.

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