

## 論文要旨

論文題名 : Theories of Structural Change:

Long-Run Analyses of Development, Geography, and Industrial Organization

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One of the most salient features during the 19th and 20th centuries is that almost all countries on earth experienced dramatic changes in consumption structure, production structure, and urban structure. These changes are empirically well-established and thus some of them are referred to as “laws” in economics: Engel's law of the demand shift from food to manufactured goods and services, Petty-Clark's law of the labor reallocation from agriculture to manufacturing and service industries, and Jefferson's law of primate city. In addition to the three laws, casual empiricism offers a long list of “evidences”: increasing varieties of consumption and intermediate goods, massive migration from rural to urban areas, and the rise and fall of mass production and mass consumption economy associated with increasing taste heterogeneity.

Despite the apparent interdependence among these changes in consumption, production, and urban structures, most of the existing theories focus on one or at most two of them simultaneously. Therefore, this thesis proposes integrated theoretical frameworks within which the three aspects of structural change can be simultaneously analyzed. Furthermore, the developed frameworks are applied to the related fields: economic development, economic geography, and industrial organization. Each chapter includes not only the sources of structural change but also the variables of interest on which the effect of structural change appears. Here we briefly summarize the contents of each chapter.

Chapter 2 presents a model of economic development through rural-urban interdependence. Rural productivities are often enhanced by a variety of intermediate inputs such as fertilizers and machinery that embody urban technologies. In turn, the urban technologies are improved by the people who are released from the rural sector owing to an increase in the rural productivities. To capture this interdependence, it emphasizes the role of endogenous changes in the cost share of industrial inputs in agricultural production and endogenous changes in the expenditure share of food and manufactured goods, together with an endogenous range of differentiated intermediate

goods. It shows that the rural-urban interdependence can generate a structural change: from a low development trap in which the economy faces less roundabout methods of agricultural production, high expenditure share of agricultural goods, and low urbanization rate toward a developed economy with more roundabout methods of agricultural production, mass consumption of manufactured goods, and high urbanization rate.

Chapter 3 introduces explicit geography into the model developed in Chapter 2 in order to fully analyze a relationship between urban primacy and economic development. It shows that transportation revolution, by enlarging the extent of the market for manufacturing firms and by enhancing the real purchasing power for consumers, results in Engel's law of the demand shift from food to manufactured goods and Petty-Clark's law of the labor reallocation from agriculture to manufacturing. The structural change in consumption and production structures weakens dispersion forces given by peasants tied to the land, whereas it strengthens agglomeration forces generated by "footloose" manufacturing workers. This gives rise to a change in the urban structure from a pure agricultural economy with evenly dispersed peasants toward a developed economy with a primate city.

Chapter 4 extends the framework of Chapter 2 by allowing more than one type of manufactured goods and by decomposing the labor supply into the number of population and the level of human capital. Then it analyzes how nonhomothetic preferences over commodities ordered by the degree of necessity affect the introduction of each commodity. The main findings are summarized as follows: First, necessity is the mother of introduction, or the order of the introduction follows that of necessity; Second, not only the aggregate labor supply but also its composition --- the number of population and the level of human capital --- have crucial roles in the composition of the final demand and thus in the introduction of new final goods; Finally, the model can predict not only aggregated but also disaggregated behaviors of the expenditure shares of final goods within a single framework: As the economy develops, the expenditure share of necessities falls, whereas that of non-necessities at the aggregated level rises. At the same time, at the disaggregated level, the expenditure share of each type of newly introduced non-necessities rises initially at the expense of previously introduced non-necessities and then falls due to subsequently introduced non-necessities. Therefore, we obtain the life cycle of products.

Chapter 5 integrates the two independent strands of literature on the geographic distribution of economic activities: "new economic geography" that emphasizes product diversity and "probabilistic migration" that stresses taste heterogeneity in residential location. It incorporates these two characteristics into a single framework, and analyzes how they affect the number and stability of equilibrium geographic structures. It shows that the home market effect due to market-mediated product diversity creates an agglomeration force, whereas idiosyncratic taste differences due to non-market interactions serve as a probabilistic immobile factor and induce a dispersion force. The tension between these opposite forces, together with the decline in transportation costs, yields a structural change in the geographic distribution of economic activities and the associated change in the interregional wage differentials.

Chapter 6 explores the role of taste heterogeneity in the scale of production. First, by endogenizing the scale of production within the framework of the discrete choice theory of product differentiation, we construct a basic model and show: (i) when taste heterogeneity is small, mass production firms emerge, (ii) when taste heterogeneity is large, small-scale production firms emerge, and (iii) when the degree of taste heterogeneity is intermediate, the symmetric equilibrium becomes unstable, and mass production firms and small-scale production firms can coexist. Second, by introducing transportation costs into the basic model, we obtain the historical evolution of American marketing consistent with Richard Tedlow's three phases: from a geographically fragmented market with small-scale production, through a geographically unified market with mass production, and to a geographically unified but characteristically segmented product market.