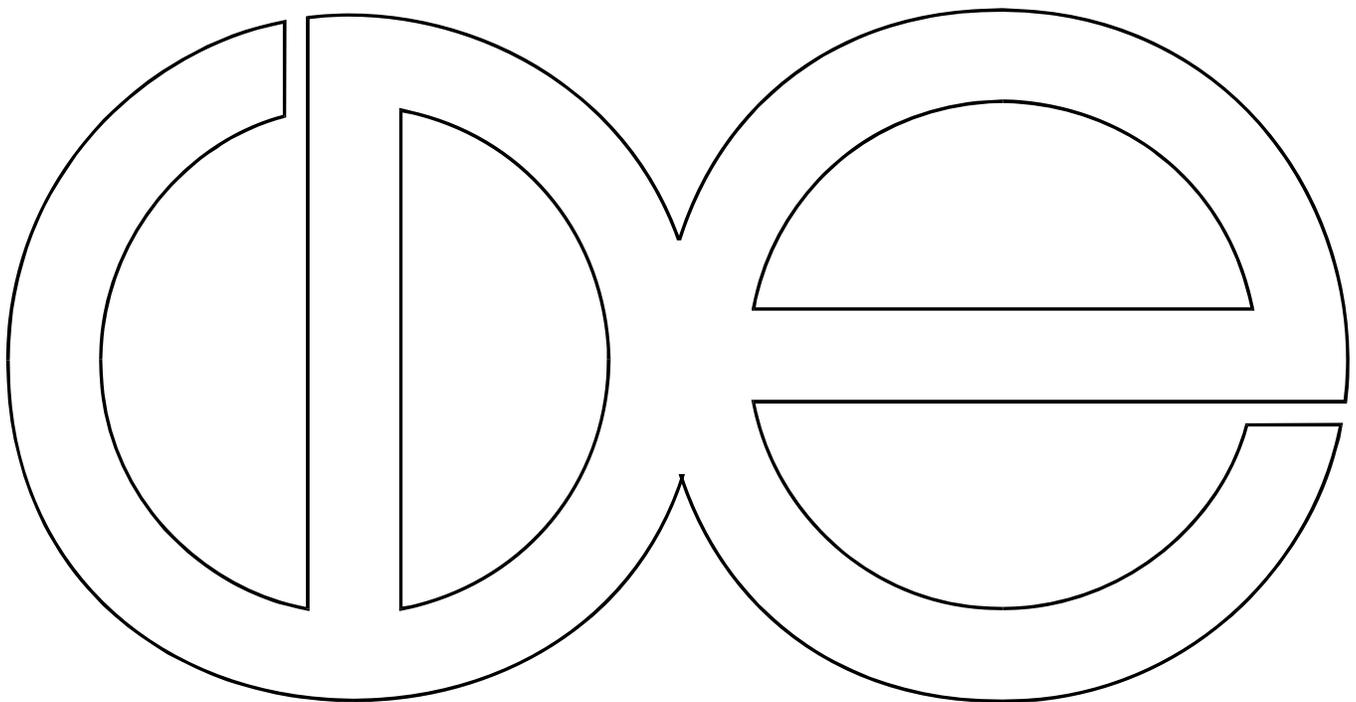


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**Notes for a Comparative Theory of Urban Formations**

**Franklin D. Wilson**

**CDE Working Paper No. 2008-05**



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Abstract. This paper seeks to break new ground by providing a firmer foundation for the study of urban formations both within and between nation-states. First, a conceptual definition of urban formation is provided, followed by the presentation of a measurement model designed to operationalize the concept. Second, it is suggested that measures of urbanization, while very useful as descriptive tools to summarize the pattern of urban agglomeration of a nation and changes therein, are of little value as analytical variables in comparative urban research. Third, a general outline of an analytical model is presented, which seeks to account for within and between nation-state variations in urban formations through the application of a multi-level modeling strategy. Finally, the implications and limitations of the proposed model for comparative urban research are discussed.

## INTRODUCTION

This paper seeks to provide an alternative approach to conceptualizing urban formations (defined below), and suggests variables appropriate for inclusion in a model designed to explain variations in the size and complexity of urban formations within and between nation-states. Although the urban literature is vast -- covering over a century and a half of scholarship -- there exists no coherent framework to explain why urban formations are important forms of social organization, and which can also account for the critical role urban formations have played in the evolution of human societies and human achievements. There are numerous theories focusing

on different regions of the world, such as developed vs. developing (Harvey, 1973; Hauser and Schnore, 1965; Frisbie and Kasarda, 1988; Rogers and Williams, 1982; Smith and London, 1990; Roberts, 2005); Europe and Asia vs. North America, Latin America and the Pacific (Firebaugh, 1979; Roberts, 1978; Hohenberg and Lees, 1995; Diamond, 1999; Massey, 2005; Walton and Masotti, 1976); and countries grouped according to their economic/political system, such as democracy/markets vs. state socialism vs. mixed economic/political systems (Andrusz, Harloe, and Szelenyi, 1996; Walton, 1993). There are also theories which emphasize the importance of a limited number of variables, such as central place theory, export base theory, theory of urban scale, location theory, theory of urban dominance, world systems theory, and dependency theory (Wilson, 1984; Kasarda and Crenshaw, 1991; Gilbert and Gugler, 1992; Bradshaw, 1987; Timberlake, 1985). However, very little effort has been directed toward accounting for variations in urban formations both within and between nation-states, taking into account multiple sources of influence emanating from the nation-state and the global system. Indeed, much of contemporary research either accepts the existence of urban without a guiding conceptual framework or treats urban as a milieu within which human interactions occur. Wirth's (1938) famous treatise on "Urbanism as a Way of Life" provides an operational definition of urban to assess its effects on individuals, and the forms of social organization which emerge within urban formations. However, Wirth provides no conceptual definition of urban, and most of his critics in responding to his theory simply ignored the conceptual basis for and the "why" of the urban formation issues altogether.

This paper seeks to break new ground by providing a firmer foundation for the study of urban formations both within and between nation-states in the contemporary world. First, a conceptual definition of urban formation is provided, followed by the presentation of a

measurement model designed to operationalize the concept. It is argued that a conceptual framework is crucial for subsequent empirical work in which the objective is to account for regularities in the urban world. Second, the measurement of urbanization and its use as an analytical variable are discussed. It is suggested that while measures of urbanization are very useful as descriptive tools to summarize the pattern of urban agglomeration of a nation and changes therein, it is of little value as an analytical variable in comparative urban research. Third, a general outline of an analytical model is presented, which seeks to account for within and between nation-state variations in urban formations in the contemporary world through the application of a multi-level modeling strategy. Contrary to conventional wisdom, it is suggested that urban formations exist under specific technology, organization, and socioeconomic and political conditions. The presence of urban formations in all literate societies suggests a common set of forces governing their existence. In addition, while urban formations exist under similar conditions in all nation-states, the historical, socioeconomic and political conditions peculiar to each nation-state substantially influence within state variations in the pattern of urbanization. Further, it is suggested that global, regional processes, and between nation-state interactions have expanded the command, control, and redistributive role of some urban formations, while diminishing the influence of the nation-state as an autonomous unit. Finally, the implications and limitations of the proposed model for comparative urban research are discussed. Particular attention will be given to the substantive significance of applying a single framework to the study of urban formations across all nations-state. Even so, the limitations of the proposed model, particularly its underlying quantitative dimension and its exclusive focus on the contemporary status of urban formations, will be discussed.

## DEFINING URBAN FORMATIONS

The concept urban formation (UF) is used in place of such concepts as city, urban community, urban place, or municipality. These terms are inadequate for the phenomenon which is the focus of this discussion. The variety of meanings attributed to them provide considerable ambiguity as to what is being conceptualized and measured. The concept of urban formation is preferred because it seeks to avoid much of this ambiguity, and it best represents the conceptual framework which will be outlined in a subsequent section. The distinction is made clear below.

Numerous efforts have been made to operationally define urban, with many providing no conceptual basis for the measures proposed (see Tilly, 1974; Castells, 1976; Eisenstadt and Sharahar, 1987; Abu-lughod, 1991). The attribute or trait approach to defining urban is by far the most common. In the case of this approach, however, there appears to be a consensus in the literature that urban formation is not a distinctive community form as it shares many characteristics with non-urban formations. This lack of distinctiveness is repeatedly demonstrated by pointing out the erosion of urban/non-urban differences due to technical and organizational changes, and the arbitrariness of the quantitative criteria used to distinguish urban from non-urban (Castells, 1977; Lang, 1986). Thus, urban is defined as an area consisting of one or more attributes, such as population size, density, administrative status, shared non-agricultural activities, etc., without providing a clear conceptual definition of what is being measured or operationalized. The United Nations' bi-annual report on urbanization includes each nation-state's definition of urban, and all are typical of this approach (United Nations, 2004). Few urban scholars acknowledge that urban formations cannot be observed in totum. We are aware of its existence only by selecting from its domain of content those attributes that best capture its

essence. In sum, our efforts to operationalize urban is merely a way of inferring its existence. As is the case in science, exactness and proof are not possible; as we can only assume that the operationalization we apply is an approximation subject to error in measurement.

The community studies specialty area in sociology, particularly that associated with human ecology, does provide a conceptual basis for defining urban formations (see Hauser and Duncan, 1958; Micklin and Choldin, 1984). Hawley (1950, pp 257-258 ), for example, defines community as “that area, the resident population of which is interrelated and integrated with reference to daily requirements.” In preparation for the forthcoming discussion, this definition is modified to focus specifically on urban. Thus, an urban formation is defined as a territorially structured form of social organization primarily based on a non-extractive division of labor among individuals and groups for the purpose of deriving sustenance. Urban dwellers, unlike individuals involved in farming, forestry, mining, and fisheries, usually do not interact directly with the natural environment. They are not extractors of resources or involved in transforming the natural environment for the purpose of deriving sustenance. However, it is important to note that it is not the nature of the activity which determines whether it falls within the urban sector, but rather the activity in conjunction with its location. There are many agriculture or related activities that do fall within the urban sector (see below).

The two essential elements of urban formations include population concentration in a circumscribed area and interdependence among the elements of that population for the purpose of meeting basic sustenance needs for food, clothing, shelter, and social and psychological well-being (see Hawley, 1950; Duncan, 1959). Interdependence is important because individuals and groups depend upon each other to meet their daily needs, as they are engaged in specialized activities forming a division of labor in which each element’s activity is linked through a

redistributive mechanism in the form of a market or an administrative apparatus. Concentration is important because effective interaction on a regular basis is facilitated by little or no distance separating participants. Spatial contiguity reduces energy expended and it reduces the opportunity costs associated with establishing and maintaining relationships. Concentration is also important because the requisite resources are unevenly distributed across space, resulting in individuals and groups gathering wherever essential resources are concentrated. Finally, some land areas provide greater access to other areas facilitating the movement of populations and goods, such as the confluence of different routes of travel.

Figure 1 provides a measurement model approach to operationalizing urban formations, which is consistent with the operationalization provided by Wirth (1938; see also Fischer, 1972), and the conceptual definition previously given. Note that there are four measured variables in the model, two each for interdependence and concentration. Interdependence is represented by share of the labor force engaged in non-extractive activities and labor force complexity, a summary index capturing the diversity of labor force sectors of a local economy. The index of labor force complexity includes all activities in an urban area, not just non-agricultural activities. Agriculture no longer refers to farming and the collection and storage of material resources. It also includes a host of related and derivative activities that are urban based. The indicators of concentration are population size and density. Concentration and interdependence are in turn indicators of urban formations. These three variables are unobserved, and it is assumed they are measured with error. While it is possible to substitute other measured indicators for the concepts of interdependence and concentration, its important that parsimony in measurement be adhered to so as not to clutter the measurement model with redundant information.

Fischer (1972), in his review and extension of Wirth's model of urbanism, considered

whether size, density, and heterogeneity could be considered components of a common factor which he referred to as “urban.” He expressed the view that heterogeneity, which could be measured in a variety of ways, would render the effort to operationalize urban using the three factors very difficult and challenging. The measurement model presented in Figure 1 addresses this issue by limiting the operational definition of heterogeneity to labor force complexity.

A conceptual definition should provide some degree of guidance as to the data requirements necessary for estimating the measurement model. An initial starting point could be each nation-state’s definition of urban as a basis for identifying an empirical referent for estimating the measurement model. A principal weakness of this approach is the tremendous nation-state variation in the identification of urban. The most common approach in comparative urban research to minimize nation-state differences in the definition of urban is to select a size of urban category which provides a high degree of confidence that a compatible unit of observation is being used (see Davis, 1969, 1972; Goldstein and Sly, 1975a, 1975b). This approach, though sensible, cannot eliminate the inherent bias associated with the use of size alone as a measure of urban, nor can it completely eliminate differences in the operational definition of urban provided by each country. Each nation-state’s operational definition of urban should be incorporated into any model which seeks to explain variations in urban formations. As it will be shown below, operational definitions are not constant, and modifications in definitions can have significant impacts on changes in the size of the urban population observed between two or more points in time. In the end, comparative urban analyses involving many nation-states should not be attempted in the absence of a statistically reliable measure of urban formations.

## URBANIZATION AS AN ANALYTICAL VARIABLE

Much comparative work focuses on explaining variations in urbanization, defined either in terms of 1) level of urbanization, share of population urban; or 2) as a process of change in the share of the population urban. Numerous studies seek to account for variations in urbanization between nation-states in general or according to the nature of the political/economic systems in which they are embedded, often taking into account their historical patterns of political and socioeconomic development. Hope Tisdale's (1942) classic paper on the operational definition of urbanization, and Davis (1969, 1972) and Goldstein and Sly's (1975a, 1975b, 1977) empirical applications of this approach to describe and explain urbanization worldwide provided the framework for numerous subsequent studies. The simplicity of the calculation and interpretation of the level urbanization as the share of the population urban makes it very attractive as an analytical variable. However, its simplicity can conceal complex and varied patterns of population distribution between nations.

It is for these reasons that urbanization may not be the appropriate variable to be used in comparative urban research in which the unit of observation is the nation-state. The number and size of urban formations within a nation and changes therein are inherent components of urbanization as a summary index. For example, one could easily classify the 225 or more nation-states monitored by the U.N. (2004) into groupings on the basis of their having statistically similar levels of urbanization. However, considering the fact that the definition of urban may not be the same for these countries, and thus in itself could be an important source of variation, it may also be the case, indeed likely, that these countries may have different configurations with respect to the number and size distribution of urban formations. In previous research, scholars have used such variables as urban primacy, over-urbanization, the presence of

an urban hierarchy, etc. to distinguish countries with similar levels of urbanization. This should not be considered an acceptable practice, because one is using a “part” to explain a whole; or because the parts, treated separately, can only provide a partial, and often redundant, picture of the pattern of urbanization of a nation.

Although it is not necessary to consider the geographical distribution of urban formations in accounting for the constituent parts of urbanization, as a measured variable, the geographical distribution of the urban population may be crucial for understanding why urbanization is of a certain level. Countries differ in the area and resources under their domain and these features will substantially influence the scope of the pattern of urbanization. Thus, in using level of urbanization as either an explanatory or outcome variable, one has to assume that each component shares equally in its determination, and geography does not matter. In comparative research this is unrealistic and may lead to erroneous conclusions.

Change in urbanization, defined in terms of change in the share urban or change in the share of total population change which can be attributed to urban change, is also problematic as an analytical variable. The level of urbanization at a subsequent point in time is a function of the relationship between two ratios:

$$[(U_{t+n} - U_t) / (P_{t+n} - P_t)] \text{ and } U_t / P_t .$$

1. If  $[(U_{t+n} - U_t) / (P_{t+n} - P_t)] > U_t / P_t$  the level of urbanization at  $(t + n)$  increases.

2. If  $[(U_{t+n} - U_t) / (P_{t+n} - P_t)] < U_t / P_t$  the level of urbanization at  $(t + n)$  decreases.
3. If  $[(U_{t+n} - U_t) / (P_{t+n} - P_t)] = U_t / P_t$  the level of urbanization at  $(t + n)$  remains unchanged.

If one were to expand the ratio of urban change to population change to reflect the components of change possible for the total population, assuming constant geographical boundaries for the nation-state, we would have the following:

$$\frac{(U_{t+n} - U_t) / (P_{t+n} - P_t)}{[(B_{t,t+n} - D_{t,t+n}) - (IM_{t,t+n} - EM_{t,t+n})]} = \frac{[(B_{t,t+n}^u - D_{t,t+n}^u) + (IM_{t,t+n}^u - EM_{t,t+n}^u)]}{[(B_{t,t+n} - D_{t,t+n}) - (IM_{t,t+n} - EM_{t,t+n})]}$$

According to this formula, an increase in the level of urbanization at  $(t+n)$  would be the result of the urban sector capturing a disproportionate share of natural increase, net immigration, or both as reflected in the components of change for the total population. However, since the urban sector is a part of the total and is not a fixed entity, it is possible for the population of the urban sector to change as a result of net reallocation from the non-urban sector. Thus a key problem with the ratio of urban change is that the numerator and denominator do not have the same components of change, and it actually conceals the multiple sources of change associated with the urban sector. Consider the following:

$$(U_{t+n} - U_t) / (P_{t+n} - P_t) =$$

$$[(B_{t,t+n} - D_{t,t+n}) + (IM_{t,t+n} - EM_{t,t+n}) + (IN_{t,t+n}^U - OUT_{t,t+n}^U) +$$

$$A_{t,t+n}^U + (RU_{t,t+n} - UR_{t,t+n}) + SC_{t,t+n}]$$

$$/ [(B_{t,t+n} - D_{t,t+n}) + (IM_{t,t+n} - EM_{t,t+n})]$$

Where

- $B_{T,T+N}$  = Total number of live births occurring between t and t+n.
- $D_{T,T+N}$  = Total number of deaths occurring between t and t+n.
- $IM_{T,T+N}$  = Number of individuals immigrating to a country between t and t+n.
- $EM_{T,T+N}$  = Number of individuals emigrating from a country between t and t+n.
- $IN_{T,T+N}$  = Number of individuals entering urban from a non-urban area.
- $OUT_{T,T+N}$  = Number of individuals leaving urban to a non-urban area.
- $A_{T,T+N}$  = Annexation of previously defined non-urban territory by urban areas between t and t+n
- $U_T, RU_{T+N}$  = Reclassification of non-urban areas to urban areas between t and t+n
- $UR_T, UR_{T+N}$  = Reclassification of urban areas to non-urban areas between t and t+n
- $SC_T, SC_{T+N}$  = Changes in definition of urban between t and t+n

As the latter formula makes clear, urban change can also reflect population redistribution, reclassification of areas, and definitional changes. While most of these components have been noted by others (see Tilly, 1974, Chapter 2; Preston, 1979), several, such as reclassification of areas and annexation, are mainly derivative from the combined influences of the other components. Moreover, a focus on components of change in conjunction with the use of urbanization as the primary analytical variable would clearly complicate a comparative urban involving many nation-states. The use of

urbanization raises two major problems.

The first is that the sources of urban change in each nation-state represented in a comparative analysis are not likely to be identical. The differences between developed and developing countries with respect to components of urban change are well recognized (Bairoch, 1988; Clark, 1996; Massey, 2005). Such differences are also likely between countries that are similar in level of socioeconomic development and/or political structure; such as that between the developed countries of Europe and the United States, Canada, and Australia. The differential impact of sources of urban change is relevant because they may not share a common set of causes. For example, the components of natural increase and of net immigration or net internal migration do not share a common set of causes, and reclassification can be a consequence of the former sources of change as well as changes resulting from technological and organizational innovations leading to both transportation changes and changes in residential development. International migration and internal migration can share similar precipitating conditions and have similar impacts on origin and destination areas, but nation-state differences in policies regarding entrances and exits may render international migration far more selective.

Urban change due to changes in the operational definition of urban can also be substantial. Consider for example, the replacement of “urban place” as a core component of urban to that of “urban cluster” in the United States (see U.S. Bureau of the Census, 2004, Table 18). The urban population increased by (3.8) percentage points between 1990 and 2000, and two-thirds of this increase was due to the shift from place to cluster. This is not the first instance of change in the operational definition of urban for the United States. Such changes have been continuous since the 1950 census, when the urbanized area concept was introduced and un-incorporated places of 2,500 or more population were added to the urban universe. It is highly likely that many countries have

modified their operational definition of urban as more reliable and sophisticated methodological tools become available for the collection and processing of census data. In sum, the omission of definitional changes could lead to erroneous conclusions regarding the causes of urban change.

A second major problem often not addressed in comparative studies using urbanization as the principal dependent variable is the modeling of the interrelations among the components of urban change, and the consequences for future growth. While the constituent elements of the components of change may not share a common set of causes, some of the major components are related to each other. One of the most important set of relations involves fertility and migration. Migration is most likely to occur between the ages of fifteen and thirty-five, a range which includes the ages of highest fertility. Thus migration raises the rate of natural increase at destination, and lowers it at origin if no replacement occurs. Similarly, immigration in a previous decade increases internal migration in a subsequent period, mainly because of the tendency of immigrants to enter a country through gateway urban formations then subsequently move to other areas. These relations can affect both within and between nation-state differences in urban population change.

The problems observed for the study of change in urbanization can also be applied to estimates of the average annual growth rates, ( $r$ ) or ( $r_u$ ), because they also involve components of change.

Consider ( $r$ ) for the total population:

$$\begin{aligned} r &= \text{Log}(P_{t+n} / P_t) / n = [P_t + ((B - D) + (IM - EM))] / P_t \\ &= [(B - D) + (IM - EM)] \end{aligned}$$

The foregoing comments should not be taken to mean that urbanization is of little value in empirical research. Urbanization could still be of value as a descriptive measure used to provide a summary of the urban experiences of a nation. Conceptually, one can think of urbanization as a

general process of demographic change involving changes in the number, size, and geographical distribution of urban formations; and it still would be useful to link the process to other macro processes to which it is related, such as agricultural productivity, modernization, industrialization, commercialization, etc. (see Davis, 1955; Bairoch, 1988; Goldstone, 2002; Massey, 2005).

What then should be the appropriate analytical measure for use in comparative urban research?

It is the contention of this paper that the appropriate starting point for the study of urban patterns and processes both within and between nation-states is not via urbanization, which has been shown as only a summary index, but rather that the focus should be on variation between individual urban formations and changes in variation over time. It is at this level that change manifests itself through the contribution of the individual components of change. The impact of each component is likely to vary for each urban formation; indeed, even the impact of definitional changes are not likely to be the same for each urban formation. It is the individual components of change linked to individual urban formations that respond to industrial, commercial, residential, and technological developments; not urbanization, which is simply an aggregation of the changes that have occurred at the local level.

## EXPLAINING CONTEMPORARY VARIATION IN URBAN FORMATIONS

In seeking to account for contemporary variation in urban formations, it would be beneficial to begin by addressing the question of why urban formations occur, and using the answer as a frame of reference for identifying explanatory factors. Urban formations offer individuals and groups certain agglomeration advantages -- namely, a reduction in energy expended and opportunity costs incurred with respect to establishing and maintaining local and extra-local relationships, involving 1) mutual exchange and support; 2) command, control, coordination, integration, and administration of activities; 3) gathering, processing, transforming, creating, and disseminating information; 4) the diffusion of

knowledge, technological forms, and organizational structures; 5) the processing and transformation of resources, whether natural or fabricated; 6) the collection and redistribution of goods and services; and 7) market and/or administrative-based transactions related to the acquisition and consumption of goods and services.

Some of these activities are not driven by economic motivations, although they may have economic consequences. Activity #1, for example, is ubiquitous as it is an essential component of all forms of social organization. Similarly, activities 2-4 may originate from the centralization of populations and material resources by political, military, and religious elites. Nevertheless, the universality of urban formations is associated with the presence of all of these activities, regardless of the economic and/or political system in which they are situated; and the presence of these activities were as evident 6,500-7,000 years ago at the origin of urban formations as they are today (McAdams, 1966; Hammond, 1972; Bairoch, 1988; Sjoberg, 1960; Diamond, 1999). However, the extent and intensity of these activities will vary between urban formations, largely as a function of the origin of the stimulus associated with their emergence and persistence.

Because the origins of the stimulus may be multiple, modeling such influences requires the construction of a conceptual model able to accommodate different levels of explanations, including those that take account of local, national, and global conditions. Accordingly, it is anticipated that three different levels of explanatory variables will be required to account for variations in urban formations. Before proceeding, it should be made clear that the partitioning of explanatory variables into three non-hierarchical levels is not without major challenges that will have to be addressed before an empirical analysis can proceed. For illustrative purposes, the language of multi-level analysis is employed. Level one consists of variables designed to account for variation in urban formations within each nation. It is not expected that the explanatory power of the level-one model will explain

urban formations in all nations to the same extent. Nation-state differences in historical development, and contemporary social, economic, and political conditions will almost certainly affect within-state variations. Further, because of the increasing globalization and integration of economic, political, cultural, and social processes efforts to unravel causal influences emanating from three different sources – within nation-state, between nation-state, and global – will be complicated. The global tendency toward convergence in these processes, as well as in institutions and organizations, indicates that influences that could once be described as predominately local or national are no longer the case (see McKenzie, 1933; Hawley, 1971; Smith, 1996).

#### A. Within-State Variations

The point now is to account for within nation-state variations in urban formations with respect to their size, complexity, and location. An initial point of departure would be to assert that urban formations exist under specific technology, organization, and socioeconomic conditions; and their presence in all literate societies suggests a common set of forces governing their existence and persistence. This means that differences in the pattern of urbanization observed between market systems, state-socialism, or mixed economic/political systems are matters of degree not of kind. Thus a useful starting point would be identifying local within nation-state conditions that influence the rise and persistence of urban formations. The objective is not to present the specifics of a model which can be estimated with observable data, but rather to point to conditions and factors which should be included in such a model.

It would serve no useful purpose to attempt a historical reconstruction of UF's in order to identify the actual triggering event(s) which lead to the emergence of individual urban formations, as this information is no longer accessible in any event. Indeed, there exist a number of historical

accounts that can be drawn upon to derive generalizations as to the origin of urban formations with regard to the specific conditions and circumstances which contributed to their emergence (see Harvey, 1973; McAdams, 1966; Sjoberg, 1960; Hammond, 1972; Bairoch, 1988; Chirot, 1985; Hall, 1998; Goldstone, 2002; Massey, 2005). Foremost among these is the vital importance of human agency in seeking to exploit an opportunity for economic returns; the acquisition and use of political power through the control and disposition of material resources and populations; and the formation of nodal points for the provision of material resources and services to a population. The historical record also reveals that some urban formations evolved from existing settlements as a result of the incremental accumulation of the actions of multiple agents over a long period of time (Hammond, 1972). Further, it is important to note that for much of urban history, economic forces were far less decisive in determining the origin and persistence of urban formation than political, military, and religious forces (see Sjoberg, 1960; Tilly, 1974, Chapter 2; Eisenstadt and Sharchar, 1987). Eisenstadt and Sharchar (1987), for example, suggest that urbanization has been driven by forces of concentration (markets) and centralization (administrative activities of political/military and religious elites), with the latter being more important historically.

The task at hand is to identify circumstances and conditions that not only contribute to the persistence of UF's, but also partly explain why UF's within a nation-state vary with respect to concentration, and the extent and complexity of independence existing between individuals and groups. Only a brief statement of the influence of these factors is provided. The factors can be grouped into broad categories, including those that 1) form the basis of the division of labor between individuals and groups; 2) reflect the influence of demographic processes, such as births, deaths, immigration, emigration, and internal migration; 3) environmental amenities, climate, topography, and breaks in transportation; and 4) reflect the spatial contiguity of human settlement systems.

Sustenance and the Division of Labor. At the most fundamental level, urban formations are central places, as they act as marketing and administrative centers for the surrounding hinterland. This is not to suggest that all urban formations originated as central places; rather, regardless of their origin central place functions soon emerge as an essential feature. In industrial or industrializing societies, specialization of economic activities is an essential feature of urban formations (see Eberstein and Frisbie, 1982; Wilson, 1984; Duranton and Puga, 2000; Daniels and Bryson, 2002). More generally, particularly if a nation supports two or more urban formations, urban formations are nodal points in a division of labor within which material resources, services, capital, labor, and information circulate, governed either by a marketing mechanism in a market economy or an administrative mechanism in a state-controlled or redistributive economy. An essential feature of the system is that each urban formation must provide a material resource or service for which there is a demand in the rest of the system. Responding to this demand causes material resources and income to flow back into the urban formation, which, in turn, circulates among workers and firms in the community. The expansion of external demand stimulates internal growth, and can provide the foundation for the emergence of complementary and/or auxiliary exporting firms; resulting in an urban infrastructure which is diverse in capital, labor, and the institutional and organizational structures conducive for innovation and long-term growth (see Wilson, 1984). In traditional redistributive systems, the characteristic mode of economic organization in pre-modern societies, the flow of goods and resources was decidedly unequal, flowing primarily up the urban hierarchy to the center of power (see Sjoberg, 1960; Tilly, 1974, Chapter 2).

As an aside, it should also be noted that urban formations are not structured to mount an organized response to outside disturbances. The potentially competing interests of multiple territorial units with charters from the state (such as cities, villages, and municipalities) make it difficult if not

impossible to affect a unified response. A UF's influence, stature, and command of material resources are a consequence of the composite influences of agents who may be acting in their own self-interests, but, in doing so, their actions may have positive benefits for individuals and groups with little or no control over the disposition of resources (see discussion of between-state variations in urban formations.)

Urban formations may not only differ in the extent of industrial diversification and their potential for responding to external shocks, they also differ in the average income available to individuals and households for consumption. This is in part because of the average wages received by workers, and the availability and amount of other forms of income, such as from investments (interests and dividends). The more discretionary income available to households, the greater the potential for business formations to meet their demand for non-essential goods and services. In a sense, the type of industries a locality is able to attract and/or develop and retain has direct implications for the standard of living enjoyed by its population. The standard of living of populations living in urban formations in different nations varies considerably. Yet even nations with low standards of living are able to sustain at least one large urban formation. Even in this instance, high death rates, particularly infant mortality, which is very sensitive to socioeconomic conditions, may be very low relative to that observed in previous centuries.

Demographic Processes. Population concentration and the extent of interdependence between units in a given UF may be a consequence of population processes, which are in turn driven by prevailing social, economic, and political conditions both within the UF but also in a nation-state as a whole. One would expect, for example, that vital rates, births and deaths, for UF's would mirror national rates (see Preston, 1979), but their impact on individual UF's could vary considerably because of differences in the size and age structure of the population of a UF. Because the population

base of many UF's is large, one would expect growth due to natural increase to also be large. In the developing world where higher rates of natural increase are driven largely by fertility rates above replacement levels, the population of UF's continues to increase appreciably. This is particularly the case in countries with levels of urbanization above 60 percent. Rural-urban migration plays little or no role in urban growth in developed countries, while in developing countries its effect is large; varying from a majority contributor in developing countries with low levels of urbanization to a minority contributor in countries with high levels of urbanization. Unstable political conditions outside of UF's, along with limited opportunities for earning a living engaging in extractive activities push individuals and households to migrate elsewhere. UF's within a country would be one such destination. International migration, both temporary and permanent, to the developed regions has become a viable option for many in the developing world who are faced with limited opportunities (see Massey, 1999). The differences in the effects of demographic forces on population changes observed in developed versus developing countries are startling. International migration is a major contributor to the growth of UF's in developed regions, but it diminishes the size of UF's in developing countries or it encourages migration replacement from the country-side. Thus, the ability to take account of the individual components of change in population as these relate to the population of UF's at the end of a period (say a decade) is important, changes in the observed size of a UF may not be in response to economic conditions. One of the major problems we face in estimating the effect of each demographic event is that extant data allow us to observe only those who survive an interval, and we are almost never able to observe those who emigrated from a UF.

Environmental Amenities. Historically, environmental amenities have played important roles in the emergence and persistence of UF's. Such amenities may include the presence of a natural resource which can be used to fabricate a good; or climatic and/or topographic conditions conducive to

the performance of certain kinds of activities, such as recreational sports. Perhaps, equally important, are areas that include breaks in transportation. Charles Cooley (1930) observed long ago that urban formations tend to emerge at “breaks in transportation” modes, such as where land and water merge. Many of the largest and most complex UF’s in the world are situated at the confluence of a major body of water and land. The technology of transportation and community during the historical period in which many of these UF’s developed was such that access to a major body of water and/or land were important for the movement of people and goods. In the contemporary world, while environmental amenities are still important, they are subsidiary to transportation systems that respond more to human settlement patterns and the organization of human activities. Individualized transportation modes and the airplane are now more central to the size and location of urban formations. Urban formations that are strategically situated to facilitate the flow of people and resources are more likely to achieve great size and complexity.

Spatial Contiguity. The extent of population concentration and interdependence among units of a UF are also affected by its location relative to that of other UF’s. The simplest way to visualize this is to consider the role of UF’s as central places. A hierarchy of central places, and a uniform spacing of central places of the same size would appear 1) if the provision of goods and services were governed by their range and threshold; and if 2) the following assumptions are made: consumers and firms act rationally in the provision and consumption of goods and services; natural resources are uniformly distributed over a land surface; and the topography of the land surface allows movement in all directions. But suppose transportation is not possible in all directions, resources are clustered in specific areas, and environmental amenities attract populations, the likely result would be that UF’s would not be uniformly spaced, and UF’s of the same dimension will likely not carry the same complement of goods and services. These real-life deviations from the central place model are most

likely to manifest themselves in spatial contiguity effects. In addition, as has already been noted, UF are nodal points in a division of labor, thus the extent of interaction between them cannot be ignored. Thus spatial contiguity should be an essential element in modeling UF's.

#### B. Between-State Variation in Urban Formations

The Nation-State. The characteristics of the nation-state and its relations with other states are important factors to consider in developing a model of urban formations. While urban formations develop and persist in response to similar conditions in all nation-states, the historical, socioeconomic, political, demographic, and geographical conditions peculiar to each nation-state substantially influence between-state variations in the pattern of urbanization. Each individual nation-state has a historical past which is reflected in current institutional arrangements; social, economic and political processes; and demographic structure, including its pattern of urbanization. Differences in economic and political development provide both a context for the development and persistence of urban formations, and they affect the general pattern of urbanization. Several authors suggest that the pattern of urbanization prevailing under a centralized political/economic system (such as state socialism) is qualitatively different from that prevalent in a decentralized political/economic system (such as market exchange) (Konrad and Szelenyi, 1978-79; Murray and Szelenyi, 1984; Kennedy and Smith, 1989; Szelenyi, 1996).

Within both centralized and decentralized systems, it is possible to observe a variety of patterns of urbanization, since, for one thing, neither appear in their pure form. For example, the impact of a market exchange system on urbanization has varied historically among societies because of differences in resource endowments, available technologies for production and transportation, the size of decision units active in the economy, the degree of involvement of the government in the economy, and whether economic growth depends on the expansion of internal versus external markets

(Roberts, 1978; Berry, 1978). In many instances, centralized systems were transformed from decentralized ones, while in others their historical pattern of development facilitated the emergence of a centralized system (see Szelenyi, 1981). In any event, Murray and Szelenyi (1982) identify several different patterns of urbanization in socialist countries depending on the degree of intensity of anti-urban practices. In fact, these authors maintain that after a successful revolution, societies can pass through several stages in transition to socialism.

The differences between the two types of systems stem not only from differences in historical patterns of development, but also because in a centralized system the state exercises primary control over the disposition of resources, the spatial distribution of labor and production, and infrastructure. Szelenyi (1996) attempts to demonstrate the significance of this in an analysis of urbanization in Eastern European countries before the collapse of the socialist state. He points out that many of the consumer oriented activities present in market exchange systems – such as the provision of specialty goods and services to affluent populations – are not present. In addition, the institutions and organizations that mediate market exchange relations – banks, investment firms, brokerage houses, developers and land speculators – are also not present. One could argue that these findings merely demonstrate that the agents driving urbanization are different. While this may indeed be the case, it does not follow that the actions of these agents resulted in a pattern of urbanization that is different from that observed in a market exchange system. What is left unresolved is the question of whether the fundamental basis for the existence of urban formations differs from that found in market exchange systems. I would argue that the answer is no, for the reasons listed in the “why urban formation” question outlined above. Urban formations are efficient ways of organizing labor, maximizing productivity, the extraction of surplus value, and providing goods and services to a population even if these are directed by an administrative apparatus rather than a market. In theory, the objective of the

state under socialism is to promote the general well-being, and it attempts to accomplish this by controlling the disposition of its resources, and minimizing the penetration of its economy by outside forces. The net result is that the state exercises greater control over the number, size, and geographical distribution of urban formations, with the result that these dimensions can be higher or lower than those observed in market exchange systems. In sum, the differences are more quantitative than qualitative.

There are other significant differences between countries that affect the pattern of urbanization observed for individual countries. As previously noted, variation in the operational definition of urban is a relevant factor which should be considered. The imposition of a constant criterion does not eliminate between nation-state differences in what constitutes “urban” or “non-urban.” This is because the criteria used to operationally define urban are reflected in the entire urban distribution, and not just in the lower end of the distribution as is commonly assumed. A country’s resource base, in conjunction with its land surface, is also relevant, because the lack of basic resources for production and/or consumption would necessitate relations with other countries to meet the basic needs of its population. Finally, a country’s demographic structure – its age and sex structure, birth and death rates, and migration rates (immigration and emigration) would substantially influence its pattern of urbanization.

Interregional and Global Processes. Global and regional processes have expanded the command, control, coordination, and redistributive role of urban formations. The globalization of capital, labor, markets, and production has substantially contributed to a hierarchical division of labor between urban formations superimposed on national/regional-based hierarchies (see Timberlake, 1985; Clark, 1996; Kasarda and Crenshaw, 1991; Anderson and Beckfield, 2004). In addition, the emergence of regional and international governance organizations designed to facilitate trading

alliances and the promotion of human rights issues have also been contributing factors.

There are two key features of global economic processes that are relevant to accounting for within and between nation-state variations in urban formations. First, global economic processes are now predominately structured around markets that act as both a redistributive mechanism (through production and exchange of goods and services), and as a vehicle for the extraction of surplus value (profit, interests and rent, distributed on the basis of the ownership of capital). The distribution of the surplus between urban formations, whether derived from activities within national boundaries or from the global economic system, is primarily a function of their respective industrial structures. Second, although there are a multitude of actors involved in the global market, transnational corporations are the principal agents involved in the production; (re)distribution of labor, capital and resources; and consumption of goods and services. Transnational corporations control a substantial level of employment, and their locations, including major sub-divisions, are not randomly distributed. They are concentrated to take advantage of agglomeration economies related to the availability of specialized goods and services, transportation and (mass) communication facilities, and amenities associated with servicing affluent populations. Thus, urban formations can also be hierarchically ordered according to the extent to which they are able to provide advantages to transnational corporations and subsidiary/affiliated entities (see Anderson and Beckfield, 2004).

## DISCUSSION

It would be appropriate to begin this discussion with what one scholar claims is the "the conventional wisdom" on the subject of urbanization:

It is now conventional wisdom that urbanization, rather than constituting a universal process, consists of different processes, peculiar to specific settings of culture and time, yielding

different results in different world regions.”  
(Fuchs 1980:81)

While the point of view presented here recommends a different perspective on comparative urban studies, including avoidance of the use of urbanization as an analytical variable, the approach is not consistent with Fuchs’ claim. There is no question that the dynamics of historical change shaped by the interplay of social, cultural, economic, and political forces provide a certain degree of distinctiveness to individual urban formations and also to the pattern of urbanization characteristic of individual nation-states. A case study approach, in contrast to the approach emphasized here, would be better suited for unraveling the richness of the urban experiences of individual urban formations and nations (see Braudel, 1979; Hall, 1998). Moreover, the objective of the model proposed here is not to completely explain current variation between urban formations, but rather only that which is derived from similar processes and conditions, and which are subject to quantitative manipulation.

Readers familiar with the field of demography will immediately recognize the central importance of the subfield of population distribution and redistribution as providing the frame of reference for the analytical model discussed (see Hauser and Duncan, 1959). In this regard, it is to be acknowledged that it is possible to conceptualize and explain urban formations in the contemporary world using alternative approaches, perhaps emphasizing political economy, normative structure, social interaction and networks, etc (see Tilly, 1974, Walton, 1993, Abu-Lughod, 1991). It would be difficult if not impossible to find a single reason to expect one model to be so comprehensive in its approach to comparative urban studies that it renders alternative perspectives redundant or implausible. The current state of social science knowledge is far from the point in which consensus has been achieved with respect to the explanatory power of a single perspective.

One of the primary objectives for writing this paper was to point out the critical need for urban

scholars to think more seriously about developing models of urban formations which integrate multiple sources of influences reflecting different levels of aggregation; from local areas, nations, and multi-regions. While the task is a daunting one, to be sure, current scholars have at their disposal much richer data files from multiple sources, much more sophisticated technology with which to manipulate and manage complex data files, and a wealth of methodological advances in the areas of measurement and empirical estimation techniques. The lack of analytical detail in model specification was intentional, in part because of a belief that the approach suggested here should be evaluated and vetted before data assembly and estimation are attempted. As previously noted, the integrated approach presented here for explaining variation in urban formations is surely not the only one possible. Realistically, the model presented here conceivably could act as a stimulus for others to become engaged in the debate regarding the appropriate way to approach the subject at hand.

Some may consider the measurement model approach to operationalizing urban formations as too impractical as the requisite data for defining urban at the lower end of the size and complexity continuum is simply not available. Most countries apply disclosure rules limiting public access to aggregate information for individuals if identification of individuals with specific characteristics is possible. While such restrictions can be prohibitive with respect to empirical estimation, they should not determine how we conceptualize a set of relationships. For one, we can make assumptions about what the distribution of lower formations would look like if the requisite data were available.

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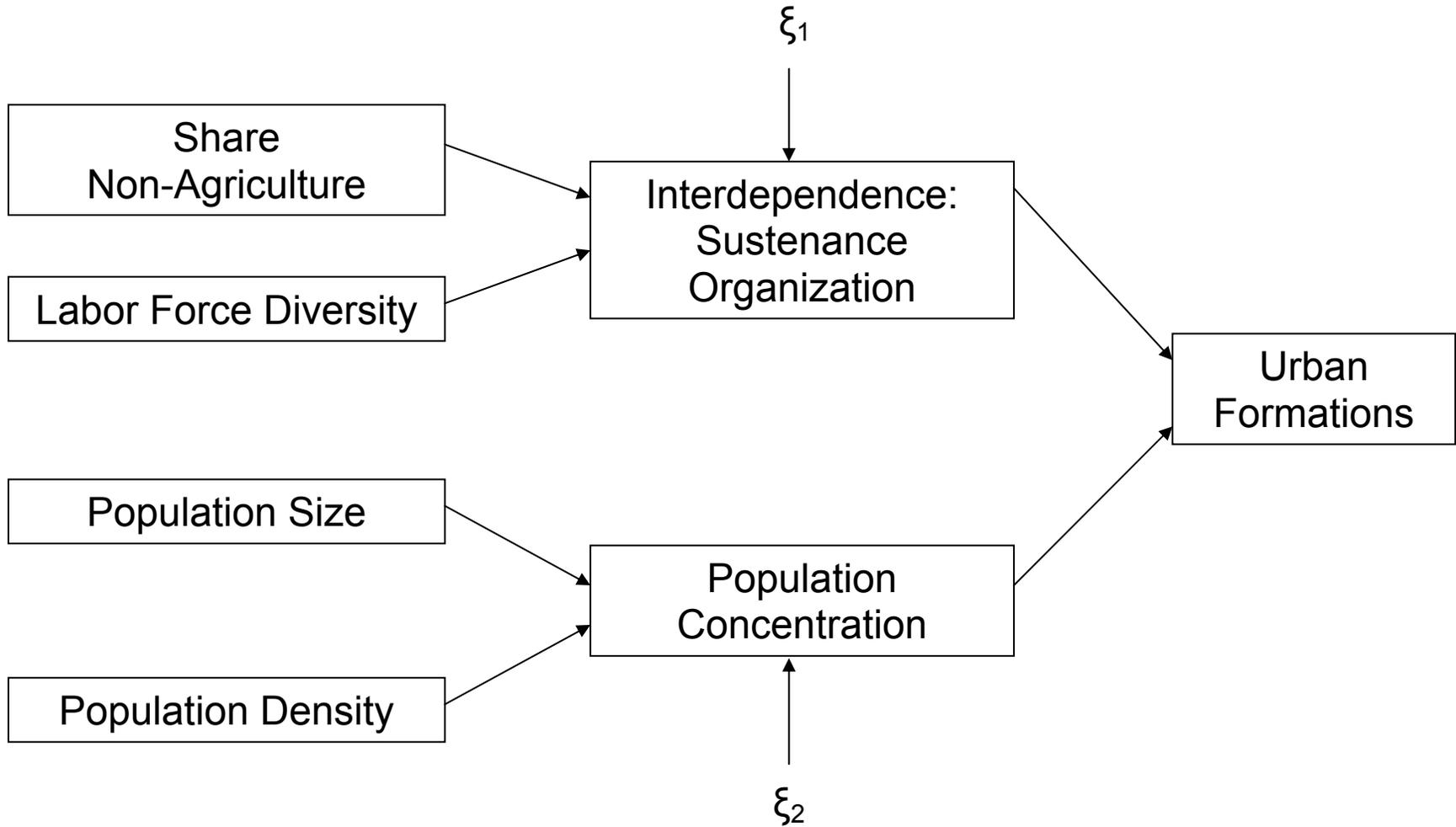
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Figure 1. A Measurement Model of Urban Formation



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